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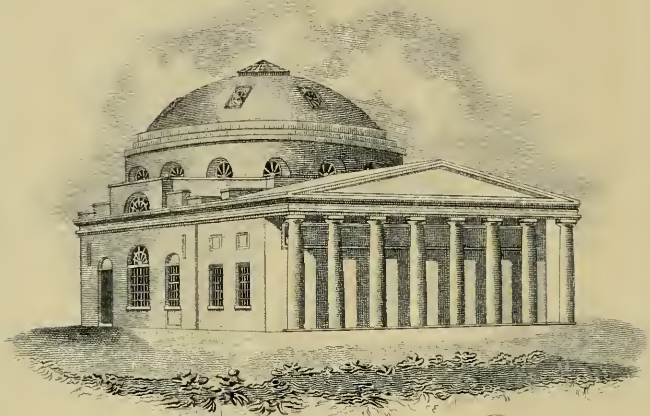

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BULLETIN
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A MODIFIED APPROACH FOR EXTRAPLEURAL THORACOPLASTY*†

By ARTHUR M. SHIPLEY, M. D.
AND
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BALTIMORE, MD.

The treatment of pulmonary tuberculosis may be summarized in the phrase "rest and more rest." The term rest implies medical treatment, and more rest means surgical intervention. It is the latter form of treatment that we propose to discuss in this paper. In addition, we shall describe a slightly different approach for the most radical of all types of surgical procedures for the treatment of pulmonary tuberculosis, namely, extrapleural resection of the upper ribs. This approach, we believe, gives better exposure and enables one to remove greater lengths of the upper ribs, especially the first and second, more easily than any other approach of which we know.

All of the different surgical procedures now being practiced in the treatment of pulmonary tuberculosis aim at the direct closure of lung cavities, the release of tension caused by adhesions, or the promotion of rest for all existing pulmonary tuberculous disease.

Bed rest, first advocated by Dettweiler, serves in a great measure to accomplish the desired result without surgical intervention. The vertical and transverse diameters of the thoracic cavity are not increased to the same degree during tranquil breathing as during dyspnœa. Therefore, limitation of exercise or actual bed rest prevents in large measure the stretching of a diseased lung that is undergoing regenerative changes. As a matter of fact, in many instances, it promotes complete recovery.

If, however, a patient has received this more conservative form of treatment for a few weeks, and an existing cavernous lesion shows no signs of improvement or a non-cavernous one behaves in a similar way, we believe some form of collapse therapy should be considered and instituted without further delay. It goes without saying that if either of the above mentioned shows signs of retrogression, under similar circumstances, the same consideration should be given to it.

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* From the Department of Surgery, University of Maryland.

† Recently we have learned that Dr. E. J. O'Brien, of Detroit, Michigan, read a paper before the Association of American Thoracic Surgeons at Washington, D. C., in May of this year, at which time he described an approach essentially the same as ours.

The indications for collapse therapy varies with different types of the disease. Wherever possible, the consensus of opinion is that artificial pneumothorax should be tried before one resorts to a more radical procedure. If pneumothorax is instituted under the usual indications, it alone accomplishes economic recovery in approximately forty-five per cent of cases. In the caseous pneumonic type of lesion, if it is satisfactorily accomplished, cavity formation, subsequent formation of pleural adhesions, and the spread of the disease to the contra-lateral lung are often prevented.

If pleural adhesions have developed prior to the introduction of air into the pleural cavity preventing satisfactory collapse, a small number of these may be converted from an unsatisfactory collapse into a satisfactory one. This may be accomplished by means of some form of intra-pleural or extra-pleural pneumolysis. These procedures will probably increase the percentage of symtomatic cures of artificial pneumothorax from forty-five to fifty-five per cent.

Phrenic exeresis often diminishes the size of a cavity even when it is located in the apical portion of the lung. This is true because of the hemi-diaphragmatic rise and resultant selective collapse of the diseased portion. Occasionally, a cavity may be completely obliterated by this method alone. It is less likely to accomplish this result if the wall of the cavity is thick and there is much surrounding disease. For cavities of shorter duration it is a much more satisfactory procedure, particularly if the neighboring disease is not far advanced. In addition, we believe, if it is combined with a scaleniotomy, it will ultimately effect a closure of cavities quite frequently, particularly if they are located above the level of the second rib.

The chronic inactive cavernous lesions located in the upper lobe, with little drainage and where there is evidence of persistent bacilli in the sputa, are rarely ever closed by any of the above mentioned procedures. Therefore, where there is an existing lesion of this character one should resort to a more radical surgical method. Extrapleural thoracoplasty as advocated by Wilms[5] and Sauerbruch[6], according to our experience, is a fairly satisfactory method in this type of case and gives considerable promise of restoring such a patient to a life of usefulness.

The first thoracoplasty was performed by de Cérenville[1] of Lausanne in 1885. From a study of his work we conclude that he appreciated the necessity of breaking the continuity of the non-yielding bony framework of the thorax in order to effect a collapse of pathological lung tissue. When 3.5 cm of the second and third ribs were resected he observed a subsequent decrease in the size of existing apical cavities.

In 1888 Quincke[2] advocated the same type of operation for both cavernous and non-cavernous tuberculous lesions. Two years later Carl Spengler[2] advocated resection of greater lengths of the ribs than was previously advocated by either de Cérenville or Quincke. The operation called by Spengler "extra-pleural thoracoplasty" is the same name now used for the more modern and extensive plastic operation for pulmonary and pleural disease.

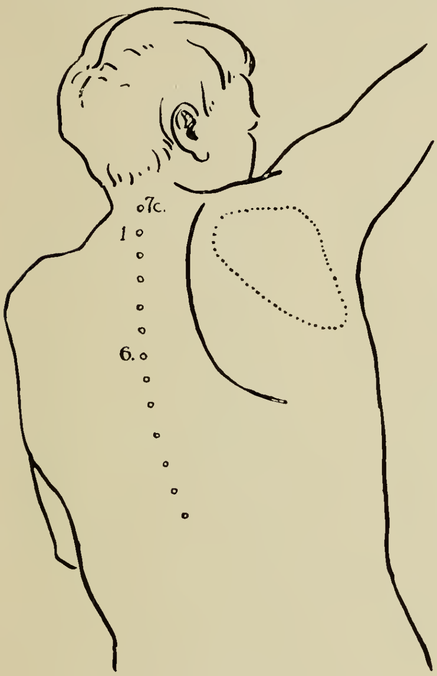

FIG. 1.—Sauerbruch's incision.

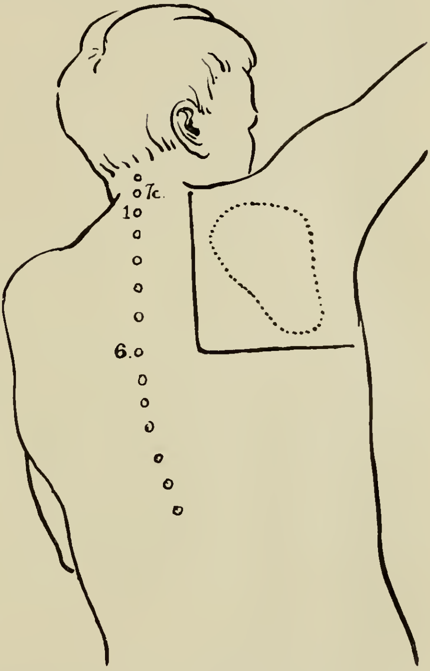

FIG. 2.—Modified incision described by author.

The operations performed at that time were not sufficiently extensive and they therefore failed to accomplish the desired result. The same criticism may even now be offered, because there are still many surgeons who do not resect sufficient lengths of ribs and, therefore, fail to collapse existing cavities. If necessary, one should do repeated operations in order to accomplish this result, for the patient is never out of danger as long as an open cavity exists.

Brauer[3] felt that an extrapleural thoracoplasty should accomplish the same result as a successful artificial pneumothorax in cases in which the latter could not be satisfactorily effected. He, therefore, removed the entire lengths of the ribs from the second to the ninth, inclusive. Brauer and Friedrich working together, soon learned that the first and tenth should also be removed. Unfortunately, however, these extensive resections proved to be extremely dangerous. Three of their first seven patients died from the operation. The shock from the operation was appalling. The operative side of the chest was deprived of its bony framework so that the chest wall moved in and out during respiratory movements. This instability of the chest wall resulted in a shifting in the position of the mediastinal structures.

At the present time the Brauer-Friedrich thoracoplasty is considered obsolete. In the meantime, less dangerous procedures that produce satisfactory results have taken its place. It is still occasionally used, however, but only in cases where the pleura is so thickened that postoperative mediastinal flutter will not occur. In addition, in the rare instances in which it is used, it is no longer performed at one sitting; instead, it is divided into two or more stages.

Julien Gourdet[4] subsequent to painstaking experimentation upon cadavers, demonstrated the importance of resecting ribs in the paravertebral region. He resected as far dorsally as the transverse processes of the vertebrae. By doing this he proved that the diminution in the size of the hemithorax was far greater than was the case with extensive resections of the lateral, ventral or ventro-lateral portions of the ribs. This operation was only intended, by Gourdet, to close pleural empyemic cavities. The compression of the lung tissue for the cure of pulmonary tuberculosis by this precedure was not considered until several years later.

Wilms[5] of Heidelberg demonstrated clinically the value of the experimental work done by Gourdet for the treatment of pulmonary tuberculosis. The Brauer-Friedrich operation may be considered radical and de Cérenville's operation a conservative one. The Wilms operation, on the other hand, is a compromise between the two. With the latter procedure shock was much less than was always present with the Brauer operation. In addition, the postoperative dangers were considerably lessened. Wilms at first, whenever possible, avoided the resection of the lower ribs, but he later concurred in Sauerbruch's opinion that they should be resected, as well as the upper ones, in a large number of cases.

Sauerbruch and Elving[6] in 1913 accepted the value of Wilms' localization of rib resection to the paravertebral region. Both Sauerbruch and Wilms worked independently and both modified certain details of the original Brauer technique. In fact, both men made improvements and suggestions that have been invaluable in the development of the modern

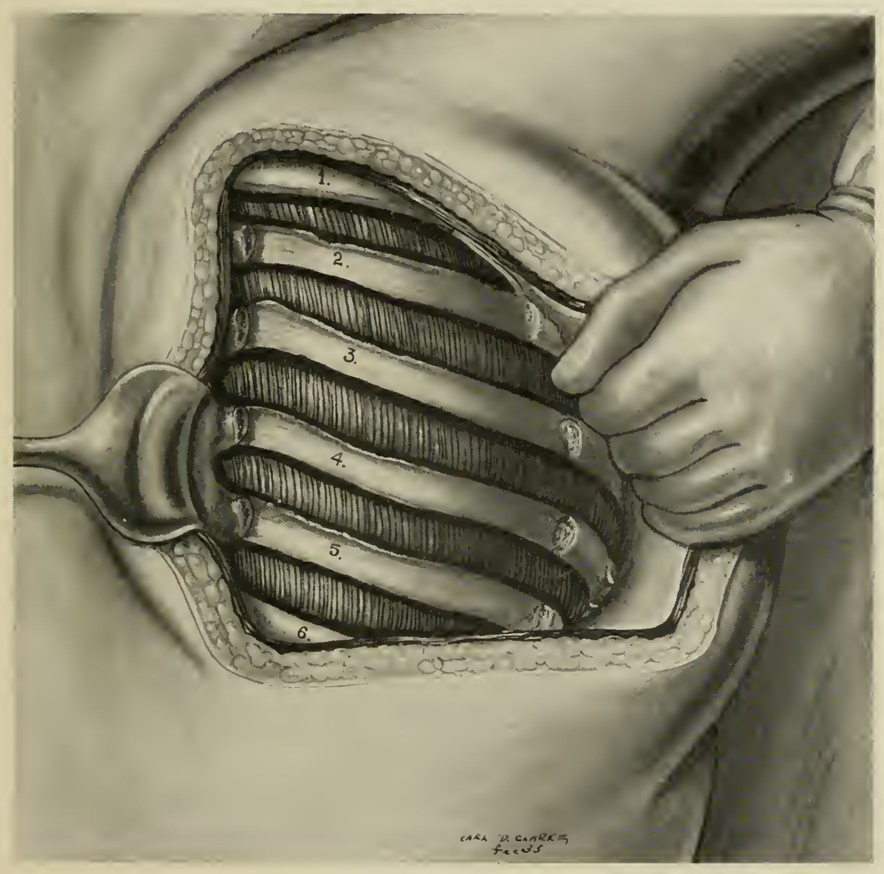

FIG. 3.—Exposure of first rib, resection of second, third, fourth and fifth ribs.

paravertbral thoracoplasty. For this reason, it is now commonly known as the Wilms-Sauerbruch operation."

In our clinic we take the stand of Alexander[7] that a phrenic exeresis paralyzes the hemidiaphragm and causes it to rise and exclude the lower lobe from respiratory function. If the paralysis is complete and there are no adhesions to limit its rise, the respiratory functions are limited when combined with extrapleural resections of the upper ribs to almost as great a degree as is the case with eleven rib resections. We also believe that by doing this the danger of aspirating infected secretions from the upper lobe is greatly diminished. Cough and expectoration are facilitated following paralysis of the hemidiaphragm. The relaxed diaphragm allows the strong abdominal muscles to act more quickly and completely in partially collapsing the lung. The advantages of preceding an upper stage thoracoplasty with a phrenic exeresis may be summarized briefly as follows: the lower chest and part of the upper abdominal muscles are not crippled, and the danger of aspiration pneumonia is lessened. By paralyzing the diaphragm for some weeks or months prior to a thoracoplasty, the patient often shows marked improvement which enables him to be in a position to stand a subsequent and more serious operation. The phrenic avulsion substitutes a comparatively minor operation for a major one with almost, if not equally, satisfactory results. Lastly, if necessary, a lower stage thoracoplasty may be performed after phrenic exeresis and upper rib resection has been performed. Therefore, several weeks prior to such an operation, we do a combined phrenic avulsion and scaleniotomy.

In preparation for a thoracoplasty the patient lies on the good side. Local, regional anaesthesia or general narcosis, or a combination of the two may be used. The shock is doubtless lessened if paravertebral injections of one per cent novocaine solution are made one-half hour prior to the beginning of the operation. A cushion is placed under the loin; another beneath the flexed thighs and a wide strap is fastened around the hips and under the table so as to prevent the patient from slipping. The head of the table may be lowered or left flat. The surgeon and the second assistant stand at the back of the patient, while the first assistant stands on the opposite side.

Sauerbruch's incision for exposure of the upper ribs begins several centimeters medial to the anterior margin of the trapezius muscle, about the level of the seventh cervical spinous process, and curves medially and downward, over the angles of the ribs to approximately the level of the seventh dorsal vertrebra. At this point the incision is curved downwards and forwards (fig. 1.) By means of this incision the upper six or seven ribs may be explored, but the scapula can only be rotated on its longitudinal axis. This approach, therefore, does not always give a satisfactory exposure of the first rib. We look on the first rib as the peg on which the thoracic will hangs. Berard[8] describes it as "the key to the thoracic dome." The additional collapse obtained when a considerable portion of this rib has been resected, as compared with that obtained when it is left intact, has been repeatedly emphasized by various writers. In spite of this fact many surgeons often leave it untouched because of the difficulty in reaching it. It is for this reason that we propose to describe a method of approach that differs little from that of Sauerbruch. Yet, we find this slight modification gives a better exposure of the first and second ribs and makes their resection comparatively easy.

The incision begins at the level of, and two fingers' breadth laterally to, the spinous process of the seventh cervical vertebra. It is carried longitudinally downwards to the level of the sixth spinous process. At this point it is directed transversely, extending directly forward at right angles to the posterior axillary line. It passes just below the tip of the inferior angle of the scapula (fig. 2). The longitudinal part of the incision extends through part of the trapezius muscle, and the rhomboideus minor and major muscles down to the cervico-costalis and longissimus muscles; the latter are retracted medially. The transverse part of the incision extends through the latissimus dorsi and lumbo-dorsal fascia to reach the costal surfaces. The scapula may be rotated then both longitudinally and transversely (fig. 3). It will be noted in this diagram that the second, third, fourth and fifth ribs have been resected. The first rib has been left intact, but is well exposed. In fact, this rib may be exposed so well that its entire bony portion may be removed from the transverse process of the first dorsal vertebra dorsally to its cartilagenous junction ventrally.

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SUPPURATIVE THYROIDITIS *

REPORT OF TWO CASES

By CYRUS F. HORINE, M.D.
BALTIMORE, MD.

Acute thyroiditis had been regarded as a rare disease until recent years. Burhans (1928) reported 67 cases and reviewed the literature. His cases, with 43 reported by Hagenbuch (1921) and 96 reported by Robertson (1911) gave a total of 216 cases recorded to that date. Suppuration was present in 30 of Hagebuch's, and 40 of Robertson's cases. Burhans found abscess formation in 63 cases to give a total number of 133 cases of suppurative thyroiditis recorded to 1928. Since then, Deaver and Burden (1929) have reported a case of chronic suppurative thyroiditis, and Desjacques and Berard (1930) one with spontaneous perforation of the abscess into the pharynx. Jorge (1931) cited 7 additional cases of suppurative thyroiditis. The two cases herewith presented make a total of 144 recorded observations.

According to Burhans, the gland is more susceptible to infection after a period of physiological stress. Females are attacked more often than males, and the highest percentage is found during the child-bearing period. Infection can develop through a persistent thyro-glossal duct, or it may follow trauma. It may be seen consecutive to throat infections or general systemic infections. Blood-born infections are thought to be the most common, yet it is possible that direct invasion from contiguous tissues or lymphatic metastases can occur.

Acute suppuration may be in the form of single or multiple abscesses and can be either unilateral or bilateral. Stein reported a case of abscess of the pyramidal lobe.

The onset is usually sudden, with chills and fever, tenderness, swelling, pain, cough and hoarseness. Theisen believes the hoarseness is due to venous congestion and œdema, rather than pressure upon the recurrent laryngeal nerve. Dyspnœa and dysphagia are frequently present. Stein mentions as symptoms, ptosis with corneal anæsthesia, due to pressure on the sympathetic nerve, and vomiting with a slow pulse from pressure on the vagus nerve. A brawny, woody, phlegmonous infiltration may be seen in the overlying skin. In the author's case, this woody inflammation extended down over the sternum.

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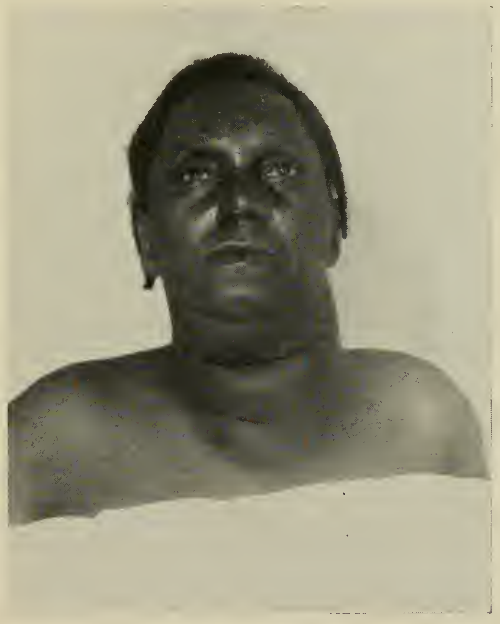
The treatment of suppurative thyroiditis is incision and drainage. It is best to do the operation under local anæsthesia, especially in those cases where there is evidence of dyspnœa, due to œdema of the larynx. One should be prepared to do a tracheotomy where there is evidence of laryngeal obstruction. In the author's case, it would have been almost impossible to do a tracheotomy, with the ordinary tracheotomy tube. The integumentary and subcutaneous infection was so extensive that a standard tube could not have been introduced. The finger should be introduced after the capsule of the gland has been incised to determine if the abscess is unilocular or multilocular. Secondary hemorrhage may be a postoperative complication. Therefore, a gauze tuck should be put into the cavity in addition to a small rubber tube. In the event of hemorrhage, the tube may be withdrawn.

The mortality rate in suppurative thyroiditis is between 10 and 12 per cent.

REPORT OF CASES

Case 1.—K. J., a colored female, age 45 years, was admitted to the University of Maryland Hospital, June 7, 1932. She had been transferred from the Sydenham Hospital. On May 8, 1932, the patient was taken ill with tonsillitis but did not consult a physician until May 12, 1932. Three days later her face became red,



This photograph of the patient was taken immediately before the operation. The swelling is more extensive in the left side of the neck, and points toward the ear. There is also some swelling in the right side. The inflammation has extended downward over the upper end of the sternum. Author's case.

swollen and tender. She was sent to the Sydenham Hospital on May 16, 1932, with a diagnosis of facial erysipelas. A slight painful swelling of the thyroid gland was present, in addition to the inflammation of the face. The temperature was 102°F. at the time of admission. A septic type of fever continued until the seventh day after admission when a normal course of one day was interrupted by the recurrence of fever. During this time the infection of the face had subsided and the swelling in the neck had gradually increased in size. The pain became more severe. On June 6, 1932, she developed some dyspnœa and dysphagia. The following day she became hoarse and could speak only in a whisper. Deglutition was difficult. The white blood cells were 31,600, with 88 per cent polymorphonuclear cells. The red blood cells numbered 1,820,000.

Upon examination, I found the patient sitting up in bed. The head was in slight extension and a large swelling could be seen in the neck. This swelling seemed to follow the direction of the sterno-mastoid muscles but it was more pronounced on the left side. The skin was slightly red in color. It was also tense, giving the appearance of a woody, phlegmonous infection. The infiltration extended downward over the upper end of the sternum.

Operation was done under local anæthesia through a low collar incision. The skin was œdematous. It was three centimeters in thickness. The capsule of the thyroid gland was exposed and incised. Pus escaped under considerable pressure. Gauze tucks were placed in an abscess cavity on either side of the trachea. The left cavity was larger than the right. Cultures made of the pus taken from the abscess yielded the streptococcus hemolyticus. The patient made a good recovery. The basal metabolic rate was − 4 on June 16, 1932 and + 7 on March 28, 1933.

Case 2.—R. M., age 19 years, was admitted to the University of Maryland Hospital, April 16, 1931. A diagnosis of suppurative thyroiditis was made by Dr. C. R. Edwards who operated upon the patient. The patient had been sent home from school three weeks prior to admission because of measles. He had a complicating tonsillitis during the illness. Ten days before entrance into the hospital, tenderness, which gradually became worse, developed in the region of the thyroid gland. The patient was hoarse and deglutition became so difficult that no solid food had been taken for five days. The swelling in the region of the thyroid was tender, red in color and fluctuated upon palpation.

Operation was performed under nitrous oxide anæsthesia through a low collar incision. The capsule bulged in the midline. About two or three ounces of thick, creamy pus escaped when the capsule was incised. The abscess involved both lobes of the gland. Drains were inserted on both sides of the trachea. The patient made a good recovery. Cultures made from the pus showed the presence of the staphylococcus hemolyticus.

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JOHN CRAWFORD, M. D.,
1746-1813.

A PLASTIC OPERATION FOR CONDITIONS IN WHICH COMPLETE AND PERMANENT REMOVAL OF THE TOE NAIL IS INDICATED

By NATHAN WINSLOW, M.D.
BALTIMORE, MD.

Lapidus[1] describes in the American Journal of Surgery a plastic operation for the cure of onychogryposis, subungual osteoma and other affections where complete and permanent removal of the toe nail is indicated. On two occasions, I have performed a somewhat similar operation. My first experience with the operation was on September 24, 1921. The patient was a nervous white woman, 37 years old, married, with an ingrowing toe nail. Having treated her previously for several minor surgical conditions, I knew that she wouldn't stand dressing of the wound well. I, therefore, desired to spare her the pain and annoyance incident to the redressings. It was to meet this problem that I decided to bite away the tip of the terminal phalangeal bone and to cover the stump with a plantar flap. Since then, I have seen the patient frequently and she informs me that she is pleased with the result. The second patient was a white girl, age 19 years, single, with a subungual osteoma situated in the big toe of the right foot. She was operated on June 10, 1923. Two weeks later she was wearing her shoes with comfort and was taking short walks. A month later, the wound had solidly united and the patient considered herself as cured.

The technic used in these cases differed but little from that employed by Lapidus. Both of my operations were done under one-half per cent procaine solution. The anesthetic was injected, as a coffer-dam, proximal to the operative site. A straight incision was made on the dorsal surface of the toe. It was begun over the lower third of the first phalanx and was extended across the joint in the mid-line. From the lower end of this incision, a limb was run down each side to meet at the tip of the toe. The nail was removed and the matrix was excised by sharp dissection. To insure the destruction of any particles of the matrix that might have escaped, the bed of the wound was thoroughly curetted. The expanded part of the distal phalangeal bone was rongeured away sufficiently to permit the soft tissues to be brought up over the stump and to be sutured to the dorsal flap without tension. This procedure ablated the osteoma in the second case. The importance of a thorough removal of the matrix cannot be too strongly stressed, else slivers of nail will reform and will cause pain in finding an avenue of escape through the soft tissues.

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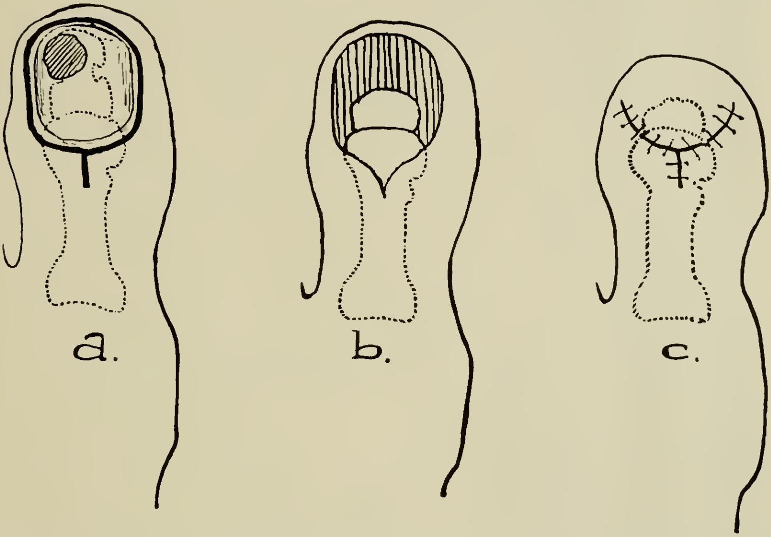
[1] Lapidus, P. W.: Complete and Permanent Removal of the Toe Nail in Onychogryposis and Subungual Osteoma, Amer. Jour Surg., 19:93, 1933.

I thoroughly realize that this operation is applicable only in a few selected cases. It would seem, however, to be the operation of choice where the toe nail must be permanently sacrificed, because the period of convalescence from this procedure is much shorter than from the operations ordinarily practised. Secondly, it leaves a stump composed of solid healthy tissue instead of a surface covered by thin cicatricial integument. Possible objections to the measure are: (1) that it foreshortens the toe; (2) that it removes the weight-bearing end of the terminal phalanx and (3) that it leaves an unsightly toe. In neither of my cases did the patient register a single complaint against the partial amputation. The surgeon is warned, however, against the indiscriminate sacrificing of the toe nail. The operation should be reserved for those cases in which the use of this method is the lesser of two evils. Where quick restoration of earning power is a desideratum, it is, by all means, the operation of choice.



a. Solid line shows racket-shaped skin incision. Dotted line represents outline of bones with subungual osteoma lined obliquely.

b. Shows the toe nail with its matrix completely removed and the digital portion of the terminal phalanx excised, leaving a long planter flap.

c. Shows the wound closed and the skin incision sutured.

These experiences have not been reported with the idea of provoking an argument as to who originated the method. My sole object is to call attention to an operation that has been employed with complete satisfaction in conditions where the toe nail must be entirely and permanently destroyed.

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DR. J. HARRY ULLRICH

We are called upon once more to mourn the death of one of our staff. On June 27, 1933, Dr. J. Harry Ullrich, associate professor of gastro-enterology, died shortly before 8 o'clock in the morning consecutive to an operation for multiple abscesses of the pancreas. Dr. Ullrich was a colonel during the World War, serving as commanding officer of the One Hundred and Fourth Sanitary Train and as division surgeon of the Twenty-ninth Division during the Meuse-Argonne offensive.

He was born July 8, 1874, at Jersey Shore, Lycoming county, Pennsylvania, and was the son of John Conrad Ullrich and his wife, Sarah Ellen Cupp. His paternal ancestry in America dated from the arrival of a great-grandfather from Hesse Cassel at Baltimore just prior to the Mexican War. This ancestor enlisted in the United States Army and was wounded at the battle of Chapultepec. Later he settled at Lewiston, Pennsylvania. His second son, John Henry Ullrich, grandfather of Dr. Ullrich, served as a volunteer in the Union Army during the Civil War.

Dr. Ullrich studied pharmacy at the Ohio Northern University. He was graduated in medicine from the Baltimore Medical College with the class of 1897. After graduation, he took a postgraduate course at the New York School of Surgery. From 1899 to 1903, he was an assistant surgeon in the United States Coast and Geodetic Survey. In 1904, he was appointed a medical examiner of the Baltimore and Ohio Railroad and was stationed at Cumberland, Md. The following year he was transferred to Baltimore, where he subsequently entered private practice as a specialist in gastro-enterology. He lectured at the Woman's Medical College, and was professor of physiology at the Maryland Medical College and proctologist to the Franklin Square Hospital. He was appointed on the staff of the University of Maryland in 1916.

Dr. J. Harry Ullrich

In 1912, he was commissioned a surgeon in the Maryland National Guard with the rank of major and assigned to the Fourth Maryland Regiment of Infantry. He saw service with this regiment on the Mexican border in 1916.

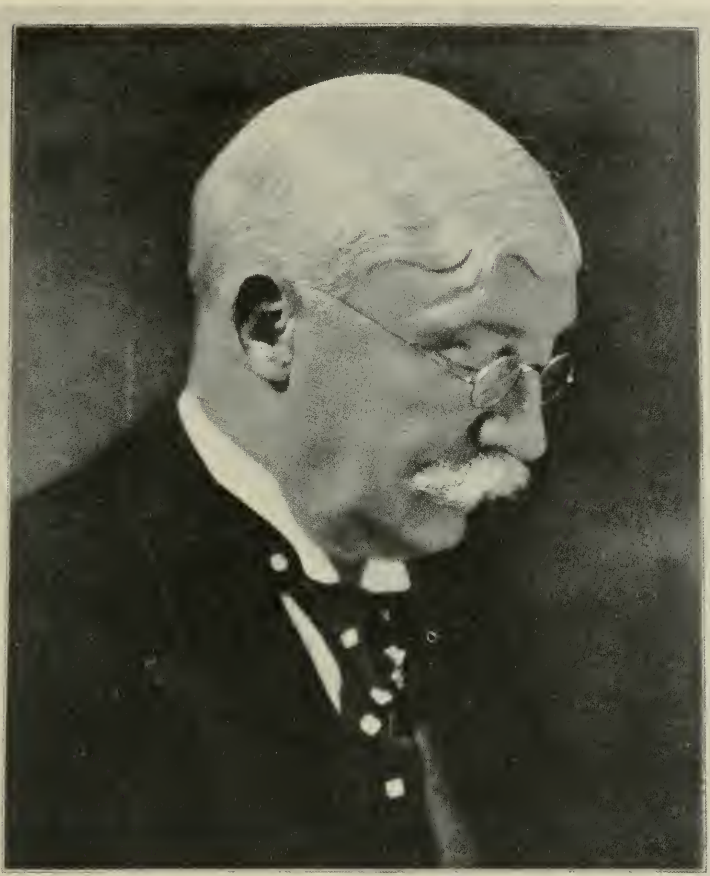
When the United States entered the World War, Dr. Ullrich was ordered to Camp McClellan, Alabama, as sanitary inspector of the Twenty-ninth Division. Promoted to the rank of lieutenant-colonel, he went overseas the following spring as commander of the One Hundred and Fourth Sanitary Train. There he saw service with the Twenty-ninth Division in Alsace and in the Verdun sector. During the Meuse-Argonne offensive he was acting division surgeon. After the armistice, he resumed command of the One Hundred and Fourth Sanitary Train, establishing a communicable disease hospital in Voisey. In March, 1919, he was detached from his unit to enter the Sorbonne, where he continued the study of gastro-enterological problems. He was mustered out of service in 1919 and resumed private practice in Baltimore. At the time of his death, he held a colonel's commission in the Medical Reserve Corps. Besides his interest in military affairs, Dr. Ullrich was a member of a number of political and fraternal organizations.

He is survived by his wife, Sallie Rittenhouse, to whom he was married in 1901, and a son, James Rittenhouse Ullrich.

Dr. Ullrich led a varied and active career. He had many interests, both civic and professional, in all of which positions he served faithfully and with marked ability.

THE HEMMETER COLLECTION

Mrs. Helene Hemmeter has given the medical library of her husband, the late Dr. John C. Hemmeter, to the Medical School of the University of Maryland. This is a very valuable collection of books, pamphlets and journals. Many of the works are in the German language. These books will materially help in building up a side of the library which has been much neglected. They certainly are a very welcome addition and will be of great service to our patrons. The journals will help us to complete many files and to start others. As is to be expected, the collection is mostly on physiological topics, a field of medicine to which Dr. Hemmeter had devoted the major portion of his life. Dr. Hemmeter was an alumnus of the University and for many years professor of physiology in the Faculty of Physic and a member of the Board of Regents. Dr. Hemmeter was recognized not only as a prominent authority in the medical world, but also as an accepted leader in musical, historical, philosophical, biological and other circles. He was verily a man of many and diversified talents. No more fitting memorial could have been established in his memory as he was a



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John C. Hemmeter

lover of books. The Bulletin on behalf of the Board of Regents, the President of the University, the Dean of the Medical School, the Faculty of Physic, the Library Committee and the Alumni takes this opportunity to thank Mrs. Hemmeter for her most generous gift.

PROMOTIONS AND CHANGES

Dean J. M. H. Rowland has announced the following changes in the teaching staff of the University of Maryland School of Medicine, for the year 1933-1934:

Promotions

Eduard Uhlenhuth, Ph.D.	From Professor of Gross Anatomy to Professor of Anatomy
K. D. Legge, M.D.	From Instructor in Genito-Urinary Surgery to Associate in Genito-Urinary Surgery
E. P. H. Harrison, A.B., M.D.	From Assistant in Obstetrics to Associate in Obstetrics
Samuel T. Helms, M.D.	From Assistant in Genito-Urinary Surgery to Instructor in Genito-Urinary Surgery
William G. Queen, M.D.	From Assistant in Pediatrics to Instructor in Pediatrics

New Appointments

John C. Krantz, Jr., Ph.D.	Professor of Pharmacology
Robert P. Bay, M.D.	Professor of Oral Surgery
Monte Edwards, M.D.	Associate in Diseases of the Colon and Rectum
M. Harold Goodman, M.D.	Instructor in Pathology
H. S. Rubinstein, B.S., M.D.	Assistant in Neurology and John F. B. Weaver Fellow in Anatomy
Frank J. Geraghty, M.D.	Instructor in Medicine
Samuel T. Helms, M.D.	Assistant in Pediatrics
Charles J. Farinacci, M.D.	Instructor in Pathology
M. Paul Byerly, M.D.	Assistant in Medicine
H. Edmund Levin, M.D.	Assistant in Medicine
Birckhead McGowan, M.D.	Assistant in Otology
Morris Fine, M.D.	Assistant in Medicine
Luther E. Little, M.D.	Assistant in Anatomy
W. H. Triplett, M.D.	Assistant in Medicine
David Tenner, M.D.	Assistant in Medicine
Earl L. Chambers, M.D.	Assistant in Medicine
Lawrence Serra, M.D.	Assistant in Medicine
J. G. Feman, M.D.	Assistant in Medicine
E. M. Reese, M.S.	Assistant in Medicine
H. William Primakoff, M.D.	Assistant in Gastro-Enterology
Frederick Wolf, M.D.	Assistant in Neurology
William N. McFaul, Jr., M.D.	Assistant in Surgery
Simon H. Brager, M.D.	Assistant in Surgery
C. W. Peake, M.D.	Assistant in Surgery
E. Hollister Davis, A.B., M.D.	Assistant in Anæsthesia
J. Frank Hewitt, M.D.	Assistant in Surgery
James C. Owings, M.D.	Assistant in Surgery
Samuel A. Vest, M.D.	Assistant in Pathology
James G. Arnold, A.B., M.D.	Assistant in Pathology and Charles M. Hitchcock Fellow in Neurological Surgery
Kenneth B. Boyd, M.D.	Assistant in Obstetrics
George L. Wissig, M.D.	Assistant in Obstetrics
Edgar Van Slyke, Ph.D.	John F. B. Weaver Fellow in Anatomy
Maurice J. Schmulovitz, A.B.	John F. B. Weaver Fellow in Biological Chemistry
C. Jelleff Carr, B.S.	Isaac E. Emerson Fellow in Pharmacology

SECTION ON ORAL THERAPY

The School of Medicine of the University of Maryland announces the formation of a new Section, that of Oral Surgery, in the Department of Surgery. This Section will be headed by Dr. Robert P. Bay as Professor of Oral Surgery.

A new subdivision in the Dispensary will also be established and will be equipped by the Dental Department. Beds will be provided in the wards of the University Hospital for the care of patients who will be available for the teaching of both dental and medical students.

JOHN ARCHER,
A Founder of the Medical and Chirurgical Faculty of Maryland.

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The names listed above are officers for the term beginning July 1, 1933, and ending June 30, 1934.

SPRING ACTIVITIES

The Spring Activities held on June 2 and 3, 1933, are now a memory. The graduation exercises were held at the Ritchie Coliseum, College Park. The Medical School celebrated its One Hundred and Twenty-sixth Anniversary. In times like these, the attendance was most gratifying to the committee in charge of arrangements.

The program included registration of alumni, talks by Drs. Spencer, Wiley and Krantz in their respective laboratories, a complimentary luncheon at the Hotel Rennert followed by the Annual Meeting and dry clinics by Drs. George Bennett and Emil Novak, two of our outstanding Baltimore alumni. The attendance was large and enthusiastic.

After the clinics an intermission was declared until 7 P. M., at which time over 300 alumni foregathered at the Lord Baltimore Hotel for the annual dinner. Dr. Randolph Winslow, Dr. J. M. H. Rowland, Dr. A. J. Lomas, President R. A. Pearson, Vice-President H. C. Byrd, Rear Admiral Percival Sherer Rossiter and the class of 1933 were the guests of honor. This affair concluded the exercises of June 2nd.

The following day a number of the Medical Alumni visited College Park. The day's program follows: 9.30 A. M., registration of the alumni at the Agricultural Building; 11 A. M., the annual Meeting of the College Park

Alumni Association in the Auditorium; 1.15 P. M., luncheon in the University Dining Hall; 2.30 P. M., class reunions; 4 P. M., commencement exercises for the graduates of both the Baltimore and the College Park Divisions of the School, Ritchie Coliseum. The graduates were addressed by his Excellency Albert C. Ritchie, Governor of Maryland, and President Raymond A. Pearson.

This year's graduating classes were the largest in the history of the University. Six Hundred and Eighty-six young men and women were awarded diplomas.

The Board of Regents, the President of the University, the Faculty of Physic, and the Board of Directors of the Medical Alumni Association desire to express through the Bulletin their deepest appreciation to the visiting alumni for their enthusiastic support. The interest and loyalty manifested by the alumni were a source of satisfaction to the committee in charge of arrangements.

The following alumni registered during the activities:

Drs. Peter J. Steincrohn, Hartford, Conn.; F. Edward Heid, Brockway, Pa.; W. H. Shealy, Sharpsburg, Md.; C. Franklin Smith, Uniontown, Pa.; W. F. Gemmill, York, Pa.; Herbert E. McLean, Jersey City, N. J.; N. T. Kirk, Washington, D. C.; Chas. W. Hartwig, Reisterstown, Md.; I. M. Zimmerman, Williamsport, Md.; O. G. Matheke, Newark, N. J.; H. C. Smith, Trenton, N. J.; Wm. A. Berger, Newark, N. J.; Alexander W. Povalski, Jersey City, N. J.; Joseph M. Gutowski, Perth Amboy, N. J.; A. W. Valentine, Washington, D. C.; Robert V. Palmer, Avenue, Md.; Creed C. Greer, Clarksburg, W. Va.; W. H. Marsh, Solomons, Md.; W. J. B. Orr, Washington, D. C.; L. M. Cavanaugh, Takoma Park, Md.; Charles R. Foutz, Westminster, Md.; A. Bruce Eagle, Martinsburg, W. Va.; Morris A. Birely, Thurmont, Md.; S. A. Alexander, Washington, D. C.; E. G. Breeding, Washington, D. C.

Lewis P. Gundry, J. M. H. Rowland, Frank K. Morris, K. B. Boyd, Nathan Winslow, Randolph Winslow, C. B. Ensor, H. E. Peterman, Henry J. Walton, J. Morley Hoag, Wm. S. Love, Jr., H. M. Bubert, Wm. N. McFaul, Jr., C. Gardner Warner, George A. Knipp, T. W. Keown, and A. E. Goldstein of Baltimore.

ANNUAL COMMENCEMENT

The One Hundred and Twenty-sixth Annual Commencement of the University of Maryland was held June 3, 1933, at the Ritchie Coliseum, College Park, Md. Governor Ritchie told the graduates that the outcome of the revolutionary changes taking place in the world depended on the tolerance and understanding with which he and they approached the problems of the future.

> The changes going on in the world about us are so completely kaleidoscopic that twenty-four hours might make anything we prepare completely out of date and entirely obsolete. These changes are vital to us. They are governmental largely in their nature, but they cover every phase of life—industry, farm, home, utilities, unemployment—all the factors that go to make up humanity in America.
>
> Revolutionary changes were necessary. The old order did not work very well. New charts had to be devised; new routes had to be tried. We hope and we believe and we have confidence that these routes will lead to successful goals and they will bring about a happy fulfillment of American life.
>
> The solution, as I see it, depends in a very great degree on the approach you and I have to the problems of the future, whether we are able to appreciate and respect the views of others and to accord to them security of conscience, freedom of expression and freedom of action.
>
> Those things, those attributes so much to be desired are all embraced in the heritage which is distinctly Maryland's and which I hope and pray Maryland may never lose. That heritage is the spirit of tolerance and understanding which the Calverts brought with them.
>
> He reviewed chapters in the history of Maryland in which the Catholic, Protestant, Jew and Quaker found equal justice, and said, in conclusion:
>
> The wells of culture and learning are here. I hope you have been imbued, too, with Maryland's spirit of toleration and of faith.

More than 5,000 persons filled the Ritchie Coliseum for the exercises. The 686 graduates from the Baltimore and College Park divisions of the university, formed in the stadium for the academic procession, and filed across the lawns and into the building.

The university orchestra played while the crowd was gathering and as the procession moved in. The Rev. John J. Bunting, of Crisfield, gave the invocation. Then Governor Ritchie spoke. His was the only speech on the program. Dr. Pearson made a few informal remarks after the degrees had been awarded.

Graduates of one college after another stood up for a moment while their deans presented them for degrees, and the entire graduating class arose while the president declared them acceptable candidates. Then they walked across the platform in an almost unbroken line, the president handing them their diplomas and the deans shaking their hands as they passed.

The Governor, according to an old custom, presented the diplomas to the law-school graduates.

The graduate degrees were awarded next, and then three honorary degrees. A doctor of laws degree was given to Senator Tydings, a doctor of divinity degree to Mr. Bunting and a doctorate of agriculture to Ernest W. Sheets, head of the division of animal husbandry of the United States Department of Agriculture.

Honorary certificates of merit in agriculture were presented to James Hamilton, of Mount Washington; Charles T. Cockey, of Pikesville, and Joseph Blandford, of Brandywine.

After the War Department award of commissions as second lieutenant in the Infantry Reserve Corps and Signal Reserve Corps—twenty-five in all—the president called the attention of the audience to the elections to honorary fraternities listed on the program and to the dozens of medals, prizes and awards won by students in the various colleges of the university.

Degree conferred since last commencement.

Klimes, Louis Frank.................Maryland

The following students received the degrees of M.D.:

Aaron, Harold Henry, B.S., New York
Baker, George Stansbury, M.A., Maryland
Barnhardt, Albert Earl, A.B., North Carolina
Beanstock, Sam, B.S.......New York
Becker, Martin, M.S......New Jersey
Bellin, David Elias, M.A....New York
Bernstein, Joseph Cecil.....Maryland
Blitzman, Louis, B.S.......New York
Bowman, Harry Daniel, B.S., Maryland
Cohen, Marvin Meyer, B.S., New Jersey
Comegys, Richard Williamson, A.B., Maryland
Diehl, Harold Clayton, B.S., Maryland
Di Stasio, Frank, B.S.....Connecticut
Drucker, Victor, B.S.......New York
Emanuel, Meyer, B.S.......New York
Espinosa, Manuel, B.S.....Porto Rico
Etkind, Meyer George, B.S., Connecticut
Fineman, Jerome..........Maryland
Fox, Haskell Wright, B.S., North Carolina
Franklin, Frank Anthony, B.S., New Jersey
Garrison, Ralph Bernard, B.S., North Carolina
Goldman, Alexander Blodnick, B.S., New York
Goldman, Meyer Leo, A.B., New York
Gorrell, James Stanley, A.B., Maryland
Griggs, William Lemuel, Jr., B.S., North Carolina
Harris, Earle Harold......New York
Hedgpeth, Louten Rhodes, B.S., North Carolina
Hemminger, Earl Wentworth, B.S., Pennsylvania
Highstein, Gustav.........Maryland
Himelfarb, Albert Joseph, A.B., Maryland
Hoover, William Alonzo, B.S., North Carolina
Hurwitz, George Hillel, A.B., Connecticut
Hyman, Joseph Jay, B.S....New York
Hyman, Morris, A.B......Connecticut
Kenler, Myron Lewis, A.B...Maryland
Kent, Ann Patrick, A.B., District of Columbia
Keown, Lauriston Livingston, A.B., Maryland
Kimmel, Charles, B.S.....New Jersey
Kochman, Leon Arthur.....Maryland
Konigsberg, Wilfred Kane, A.B., New York
Lentz, George Ellard, B.S., Pennsylvania
Lifland, Bernard Daniel, B.S., New Jersey
Lowman, Milton Edward, A. B., Maryland
Malinoski, Wallace Henry...Maryland
Matheke, George Adolph, B.S., New Jersey
Miller, Benjamin, B.S......New York
Miller, Meyer George, B.S., New York
Moore, James Irving, A.B...Maryland

Novenstein, Sidney, A.B.	Connecticut
Osserman, Kermit Edward, A.B.,	New York
Peer, George Foster	West Virginia
Pico, Jose Teodoro, B.S.	Porto Rico
Racusin, Nathan	Maryland
Robinson, Daniel Robert, B.S.,	New York
Rosenberg, Arthur, B.S.	New York
Rosenfeld, David Herman	Maryland
Rubin, Samuel S.	Maryland
Rutland, Hedley Ethelbert, B. S.,	Pennsylvania
Sager, Harold, B.S.	New Jersey
Scarborough, Asa Mark,	South Carolina
Schiff, Hyman, A.B.	Maryland
Schiff, Joseph, A.B.	Maryland
Schindler, Blane Markwood,	Maryland
Schneiman, Maurice Harris, A.B.,	Pennsylvania
Schochet, George	Maryland
Schwartz, Alec Robert, B.S.,	Pennsylvania
Schwartz, Paul M.	Maryland
Sewell, Stephen, Ph.M.	New Jersey
Shea, Cornelius Joseph	Connecticut
Shinn, George Clyde	North Carolina
Smith, Ashby Wade	Virginia
Stackhouse, Howard	New Jersey
Stern, Maurice Lee, A.B.	New York
Taylor, Clifford Morrison	Maryland
Thumim, Mark, B.S.	New York
Turano, Leonard Francis, B.S.,	New York
Van Metre, John Lee, A.B.,	West Virginia
Way, Samuel Eason, A.B.,	North Carolina
Weisman, Samuel	Maryland
Wieciech, Michael Joseph Soltis, A.B.,	Maryland
Wolbert, Frank Olaf	Maryland
Woodard, Barney Lelon, B.S.,	North Carolina
Woodford, Thomas Larry, A.B., B.S.,	West Virginia
Zager, Saul, B.S.	New Jersey

HONORS

University Prize Gold Medal.............................James Irving Moore

CERTIFICATES OF HONOR

Manuel Espinosa
Meyer Leo Goldman
Harold Henry Aaron
Meyer George Etkind
Kermit Edward Osserman

PRIZE

The Doctor A. Bradley Gaither Memorial Prize of $25.00 for the best work in genito-urinary surgery during the senior year........Samuel Weisman

The following young ladies received the degree of Graduate in Nursing:

Barclift, Daphne G.	North Carolina
Blum, Dorothy E.	Maryland
Bowman, Dorothy M.	New York
Burnette, Arra M.	West Virginia
Caldwell, Thelma J.	West Virginia
Christopher, Dorothy	Maryland
Clarke, Marie H.	Maryland
Conner, Bessie E.	Maryland
Dahlmer, Ruth E.	Maryland
Hix, Gladys G.	South Carolina
Jones, Doris C.	Maryland
Mattingly, Katherine P.	Maryland
McCune, Mary V.	West Virginia
McKeel, Allie S.	North Carolina
Melson, Edna E. M.	Virginia
Melson, Sallie M.	Virginia
Reese, Mildred E.	Maryland
Scarborough, Bertha E.	Maryland
Sherman, Margaret C.	Pennsylvania
Skinner, Martha W.	Maryland
Stack, Virginia W.	Maryland
Stein, Anna E.	Pennsylvania
Wengerd, Marguerite M.,	Pennsylvania
Wright, Dorothy C.	Pennsylvania
Wynne, Vivian W.	North Carolina

PERCIVAL S. ROSSITER

The Surgeon General of the Navy, Rear Admiral Percival Sherer Rossiter was born at Sheperdstown, W. Va., November 30, 1874. He missed being a native of Maryland, by a matter of six weeks, as his father, the Rev. Joel T. Rossiter, the dearly beloved and well remembered pastor of the Dutch Reformed Church at Calvert and Read Sts., Baltimore, accepted a call to this church early in January, 1875. The future Surgeon General of the Navy received his early education in the schools of this city and later entered Baltimore City College. His college course completed, he matriculated at the University of Maryland Medical School, and was graduated from that historic and well known institution in the class of 1895. Interested in psychiatry, he accepted an appointment at the State Hospital at Spring Grove, Md. It was while serving his internship here, that the spirit of adventure and wanderlust, which was to so characterize the young medical officer's future became manifest, for within a year or so we find him at Cripple Creek, Col. Cripple Creek in those days was in the throes of being the most active mining camp in the West. Here in the land of the great open spaces 'where men are men," the young physician was fast building up an active and lucrative practice in medicine and surgery, but mostly in surgery, as it was still the custom for men to "die with their boots on" in this hurly burly mining camp. His life here was a splendid training for what was to follow, for within a period of two years young Rossiter was off to the Spanish-American War as a Captain in the U. S. Volunteers, attached to the 7th Army Corps and serving with that outfit in Cuba. The Spanish-American War over, we next find Dr. Rossiter, from the years 1899 to 1902, in the Philippines with the Army engaged in putting down Aguinaldo's rebellion and the pacification of those Islands. He returned to the U. S. in 1902 with the idea of resuming civil practice, but the adjustment from four years of active military service, to the drab routine of a peaceful general practice evidently was too radical, for we next discover Rossiter flirting with a Naval Career. Having looked the Army over, the opportunities and advantages offered by the Navy of combining further travel and adventure with his chosen profession rather appealed to him, so in January, 1903, he was commissioned as an Asst. Surgeon in the Navy. In view of the success he afterwards attained, it might be said at this point of his career, that what was the Army's loss was the Navy's gain. Having completed a six months special course at the Naval Medical School in Washington, he was ordered to duty at Honolulu. Here he remained two years, when he was ordered to the Naval Academy at Annapolis. A few years later having completed his shore duty, he was in Samoa, that island possession in the South Pacific, but recently acquired by the U. S. Here Dr.

Rossiter found many medical problems to solve. The most outstanding was the great prevalence of and morbidity from the just then beginning to be recognized "Hookworm disease," and that most loathsome of all diseases next to leprosy, elephantiasis. Thousands of Samoans were infected and dying of these two notorious diseases. Past Asst. Surgeon Rossiter with well known energy and keen professional interest threw himself into the campaign for the eradication of "Hookworm disease" and elephantiasis, with the result that this work received the commendation of the Navy Department and the medical world in general. His reports were important contributions to the tropical medicine of that period. This pioneer effort to eliminate hookworm and elephantiasis (grave economic factors in Samoa) was terminated by Dr. Rossiter being ordered for duty to the Navy Yard, Puget Sound, Washington, where he remained until the outbreak of the World War, when he was assigned as Senior Medical Officer of the Naval Training Station at "Goat Island" in San Francisco Bay. Here thousands of naval recruits were being hastily mobilized and trained for duty at sea. The men were living in barracks under the most congested conditions incident to a country engaged in a great war. The influenza plague was sweeping the country from its entry point at Commonwealth Pier, Boston Mass., to the Pacific, leaving a harvest of deaths in its wake. Recognizing the danger to his recruits, and warned by the terrific mortality reports as this worst of all plagues in modern history was disorganizing the nation, and sweeping from the Atlantic to the Pacific coasts, Dr. Rossiter persuaded the Commandant of the San Francisco Naval District to give him authority to quarantine Goat Island. The authority was granted and the quarantine was so rigid, and isolation so complete, with the result that Goat Island was possibly the only place in the entire U. S., that entirely escaped the deadly ravages of the influenza plague. Still later in the war, we find him attached to the U. S. S. Huntington, on the staff of and advisor to Admiral Gleaves, then in charge of the Naval Transport service, one of the big factors of the war, viz. ferrying the millions of men overseas. The success of this undertaking being one of the brightest chapters in American Naval History. After the Armistice had been signed Comdr. Rossiter went to sea on the then latest and largest of our dreadnaughts as Senior Surgeon of the U. S. S. Idaho. The shakedown cruise of the ship was to Brazil. On board as a courtesy passenger by order of the State Department was the then President of that Country. That the lure and possibilities of that country must have left its impression upon Dr. Rossiter is quite evident, for having remained ashore hardly a year as Personnel Officer at the Navy Department, we next find him as a member of the U. S. Naval Mission to Brazil. Here he remained four years. Upon his return to the U. S., we find him successively as Executive Officer of the Boston and New York Naval Hospitals. Later he assumed command of the New York Hospital, one of the largest and most important of all the Naval Hospitals. Early in 1932 he was brought to Washington, D. C., and put in charge of the Naval Hospital in that city. From this position he was elevated to the Surgeon-Generalship of the Navy by President Franklin D. Roosevelt, soon after the President took his oath of office. The success which Surgeon-General Rossiter has attained, has been earned and deserved. His entire career both professional and as a man has been colorful and outstanding. He brings to the bureau of which he is chief, a vast experience as to the needs of his own department, which will not only be most valuable to the Navy but to the country in general. He is a sturdy character, a man of well balanced but decisive judgement, which commands the respect not only of his own corps, but of the line and staff of the Navy who know him.

SOME RECENT ACCESSIONS TO THE LIBRARY, UNIVERSITY OF MARYLAND, SCHOOL OF MEDICINE

Mrs. Ruth Lee Briscoe wishes to announce that among others, the following books have been added to the library. These volumes are now ready for circulation.

Eggleston, C.: Essentials of Prescription Writing. Saunders, 1928.
Nightingale, Florence: Notes on Nursing. Appleton, 1918.
Alexander, H. L.: Bronchial Asthma. Lea & Febiger, 1928.
Pelouze, P. S.: Gonorrhea in the Male and Female. 1932.
Bastedo, Walter A.: Materia Medica. Saunders, 1932.
Bumpus, Hermon C.: Minor Surgery in the Urinary Tract. Saunders, 1932.
Freeman, W. J.: Neuropathology. Saunders, 1933.
Janet, Pierre: Major Symptoms of Hysteria. Macmillan, 1929.
McDowall, R. J. S.: Science of Signs and Symptoms. Appleton, 1932.
Cantarow, A.: Calcium Metabolism and Calcium Therapy. Lea & Febiger, 1933.
Hadfield & Garrod: Recent Advances in Pathology. Blackiston, 1932.
East & Bain: Recent Advances in Cardiology. Blackiston, 1931.
Pearson & Wyllie: Recent Advances in Diseases of Children. Blackiston, 1930.
Haslam, J. F. C.: Recent Advances in Preventive Medicine. Blackiston, 1930.
Hewer, C. L.: Recent Advances in Anesthesia and Analgesia. Blackiston, 1932.
Bourne & Williams: Recent Advances in Obstetrics and Gynecology. Blackiston, 1932.
Piney, A.: Recent Advances in Hæmatology. Blackiston, 1931.
Poynton & Schleisinger: Recent Advances in Rheumatism. Blackiston, 1931.
Beaumont & Dodds: Recent Advances in Medicine. Blackiston, 1931.
Pryde, John: Recent Advances in Biochemistry. Blackiston, 1931.
Darlington, C. D.: Recent Advances in Cytology. Blackiston, 1931.
Dible, J. H.: Recent Advances in Bacteriology. Blackiston, 1932.
Crookshank, F. G.: Epidemiological Essays. Macmillan, 1931.
Dock, L., et al.: History of American Red Cross Nursing. Macmillan, 1922.
Musser, J. H.: Internal Medicine. Lea & Febiger, 1932.

ITEMS

Dr. J. Harvey Cleaver, Los Angeles, Calif., class of 1880, has written a brochure entitled "Quaint Philosophy of a Physician" which has received some very favorable comments from the press.

Dr. J. Mason Hundley, Jr., associate in gynecology, has left for a six weeks' tour of Europe.

Dr. Harry Lipkin, New York, N. Y., P. & S., class of 1914, has been appointed an associate visiting physician to the Jewish Memorial Hospital. If any of our alumni care to visit the Hospital, Dr. Lipkin will be pleased to show them around.

Dr. G. O. Sharrett, Cumberland, Md., B. M. C., class of 1908; has been elected president of the Medical and Chirurgical Faculty of Maryland. He succeeds Dr. J. A. Chatard. Dr. Sharrett specializes in the diseases of the nose and throat. He is chief laryngologist to the Allegany Hospital and consultant in oto-laryngology at the Memorial Hospital, Cumberland.

Dr. G. Carroll Lockard, Baltimore, Md., class of 1903, professor of clinical medicine, U. of Md., and John L. Riley, Snow Hill, class of 1905, were elected vice-presidents of the Medical and Chirurgical Faculty of Maryland.

Dr. Edward A. Looper, Baltimore, Md., class of 1912, is a councilor and Dr. Ernest H. Gaither, Baltimore, Md., B. M. C., class of 1905, secretary of the section on gastro-enterology of the Southern Medical Association.

Dr. J. M. H. Rowland, Baltimore, Md., B. M. C., class of 1892, and dean of the Medical School, University of Maryland, read a paper on Lower Maternal Death Rate before a joint meeting of the Medical and Chirurgical Faculty with the District of Columbia Medical Society, at Washington, D. C., January 11, 1933.

Dr. Louis A. M. Krause, Baltimore, Md., class of 1917, is secretary of the Osler Historical Society.

Dr. Julius Friedenwald, Baltimore, Md., P. & S., class of 1890, and professor of gastro-enterology, University of Maryland, School of Medicine, is president of the Baltimore City Medical Society; Dr. Charles Emil Brack, P. & S., class of 1895, and professor of clinical obstetrics, University of Maryland, School of Medicine, is secretary; Dr. Arthur M. Shipley, Baltimore, Md., class of 1902, and professor of surgery, University of Maryland, School of Medicine, is a member of the honor committee; and Dr. Ernest H. Gaither, Baltimore, Md., B. M. C., class of 1905; Dr. Frank S. Lynn, Baltimore, Md., class of 1907, and professor of clinical surgery, University of Maryland, School of Medicine; Dr. Abraham Samuels, Baltimore, Md., P. & S., class of 1898, and associate professor of gynecology, University of Maryland, School of Medicine; Dr. W. Houston Toulson, Baltimore, Md., class of 1913, and professor of genito-urinary diseases, University of Maryland, School of Medicine; Dr. Ralph P. Truitt, Baltimore, Md., class of 1910, and associate professor of psychiatry, University of Maryland, School of Medicine, and Dr. Waitman F. Zinn, Baltimore, Md., P. & S., class of 1911, and clinical professor of diseases of the nose and throat, are members of the House of Delegates.

Dr. Robert P. Bay, Baltimore, Md., class of 1905, is a member of the committee which has charge of the Eugene Fauntleroy Cordell Fund, of the Medical and Chirurgical Faculty of Maryland. Dr. Samuel A. Nichols, Clarksville, Md., B. M. C., class of 1897, is the chairman.

Dr. G. Milton Linthicum, Baltimore, Md., P. & S., class of 1893, and professor of proctology, University of Maryland, School of Medicine, is chairman of the medical economics committee of the Medical and Chirurgical Faculty of Maryland.

Dr. M. B. Levin, class of 1914, is located at 211 W. Monument St., Baltimore, Md.

A memorial portrait of Dr. C. Hampson Jones, late professor of public health at the University of Maryland and Commissioner of Health of Baltimore, was unveiled in the War Memorial Building on May 27, 1933.

Dr. Charles Bagley, Jr., Baltimore, class of 1904, is a patient in the Union Memorial Hospital.

The work of razing the old buildings occupying the site of the new University of Maryland Hospital at the southwest corner of Redwood and Greene Streets was begun June 5, 1933. The contract was awarded to the Consolidated Engineering Company and the improvement will cost about $970,000. The new hospital, a ten-story building with basement and sub-basement, will accommodate approximately 400 beds. Building operations are expected to consume about a year. Plans for the building were prepared by the offices of Joseph Evans Sperry and Smith & May. According to the bids submitted, the total cost of construction will be $1,207,976.06. This includes $978,750 for actual construction cost, $50,431 for elevators, including electric dumb waiters, and $178,978.06 for kitchen equipment, sterilizing furnishings and architects' fees. The remainder of the $1,500,000 appropriated by the legislature was used in the purchase of the grounds and improvements standing thereon. At the top of the building will be a tower in which the noise-making equipment of the institution, such as the machinery for the elevators, will be housed.

The following graduates of the University of Maryland are members of the Southern Surgical Association:

Drs. Randolph Winslow, Baltimore, Md., class of 1873.
Elmer H. Adkins, Miami, Fla., class of 1905.
Charles Bagley, Jr., Baltimore, Md., class of 1904.

Charles Reid Edwards, Baltimore, Md., class of 1913.
Alexius McGlannan, Baltimore, Md., P. & S., class of 1895.
Emil Novak, Baltimore, Md., B. M. C., class of 1904.
Fred W. Rankin, Lexington, Ky., class of 1909.
Arthur M. Shipley, Baltimore, Md., class of 1902.
James E. Stokes, Salisbury, N. C., class of 1892.
Nathan Winslow, Baltimore, Md., class of 1901.
Walter D. Wise, Baltimore, Md., P. & S., class of 1906.
Lloyd Noland, Fairfield, Ala., P. & S., class of 1903.

Caleb Winslow, M.A. (Haverford College, Pa.), formerly registrar of the Medical School, University of Maryland, has accepted the position of dean of the Garey School, "Oakington," Aberdeen, Md. Major Enoch B. Garey, formerly president of St. John's College, Annapolis, Md., is the president. This is designed as a progressive school for boys from an early age on to preparation for college. It is located on the Chesapeake Bay and occupies a site of some 550 acres. Dr. Randolph Winslow, class of 1873, and professor emeritus of surgery, is a member of the advisory board. Dr. Nathan Winslow, class of 1901, has been appointed consulting surgeon to the institution. A summer camp for boys is now being conducted under the auspices of the school officers by William Triplett, B.A., Johns Hopkins University, class of 1933. This manorial estate is a show place of Maryland. Our alumni are extended a cordial welcome to visit the school and its campus.

Dr. William Raymond McKenzie, P. & S., class of 1915, has announced the opening of a bronchoscopic clinic at St. Joseph's Hospital, Baltimore, Md.

Dr. Charles A. Waters, Baltimore, Md., class of 1911, read a paper entitled "New Methods of X-ray Diagnosis and Their Clinical Value" before the Baltimore County Medical Association, February 15, 1933, and Dr. Edward A. Looper, Baltimore, Md., class of 1912, gave a moving-picture demonstration of foreign bodies in the bronchi and esophagus at the same meeting.

DEATHS

Dr. **Charles Edward Adams**, Gastonia, N. C.; class of 1878; aged 78; died, June 9, 1933, of angina pectoris.

Dr. **Minor Revere Adams**, Statesville, N. C.; class of 1878; aged 78; died, May 27, 1933, of cardiac disease. Dr. Adams, a native of Iredell county, was born in Cool Spring township, October 14, 1854. His father was Dr. J. R. B. Adams and his mother Mary Gracey. His forefathers for three generations, both on his paternal and maternal sides, were natives of Iredell county. His father practised medicine in Cool Spring township for 45 years. His grandfather, James Adams, was an elder in Concord Presbyterian church at Loray. Dr. Adams was educated in the common schools of Cool Spring township, at the Statesville Male Academy and later at Finley High School, Lenoir. He located at Statesville in 1884 and remained there until his death. He served as county physician and as city physician for a number of years. At the time of his death, he was counsellor for the Ninth District Medical Society. Dr. Adams married, October 14, 1891, Lula R. Rhyne, by whom he is survived and two children, Mrs. George W. P. Whipp, Catonsville, Md., and Minor R. Adams, Jr., Gastonia, N. C. Dr. Minor was diligent in his profession. He gave heed to his duty as a citizen. He had the respect and confidence of his community.

Dr. **Silas Simeon Brown**, Pittsburgh, Pa.; B. M. C., class of 1893; aged 70; died, May 31, 1933, of cerebral hemorrhage.

Dr. **Arthur Lee Browne**, Baltimore, Md.; formerly associate professor of chemistry in the Baltimore Medical College; aged 66; died June 17, 1933. Dr. Browne was the son of the late Dr. William Hand Browne, class of 1850, who gave up medicine to become a professor of English at the Johns Hopkins University. He was a scion of an old Maryland family active in the Revolutionary and the Civil Wars. He was educated at Marston's University School, Baltimore, and was a B. A. of the Johns Hopkins University (1888). In 1895, he was a guest student of the late Dr. Ira E. Remsen, specializing in organic chemistry. In 1900, he received the honorary degree of M. D. from the Baltimore Medical College. From 1895 to 1905, he was associate professor of chemistry at the latter institution. He then became a member of the firm of Penniman and Browne, analytical chemists. His outstanding public work was an analysis of the water supply of Maryland and Virginia. His determination of the heat value of coal was the first comprehensive investigation of its kind in this country. He was an authority on petroleum and ceramics and was recognized as one of the most skilled chemical analysts in Baltimore. He was a member of the American Chemical Society, the American Institute of Chemical Engineers, the Electro-Chemical Society; the British Society of Chemical Industry and of the American Society for Testing Materials.

Dr. **Albert Edward Brownrigg**, Sheridan, Wyo.; B. M. C., class of 1897; also Harvard University Medical School (1898); member of the American Psychiatric Association and the New England Society of Psychiatry; served during the World War; on the staff of the Veterans' Administration Hospital; aged 60; died, May 3, 1933, of carcinoma of the lungs.

Dr. **William Lawrence Burns**, Cumberland, Md.; class of 1908; aged 50; died, April 1, 1933, of coronary occlusion.

Dr. **Bennett F. Bussey**, Texas, Md.; class of 1885; past president of the Baltimore County Medical Society; member of the Sons of the American Revolution; aged 70; died, July 26, 1933, of cardiac disease. He was born at Bentley Springs and was the son of Clement Bussey and Mary Ridgely Cockey. He was educated in the Baltimore county public schools. In 1912, he married Katherine McLane Craig, who survives him together with 4 children, Miss Mary Ridgely Bussey, Miss Christine Bussey, Bennett F. Bussey, Jr., and Robert H. Bussey.

Dr. Henry Andrews Cotton, Lawrenceville, N. J., class of 1899; member of the House of Delegates of the American Medical Association, 1921-1922; member of the American Neurological Association, American Psychiatry Association, Association for Research in Nervous and Mental Diseases, American Psychopathological Association and the American Bacteriologists; veteran of the Spanish-American and World Wars; corresponding member of the British Medico-Psychological Society; for many years medical director of the New Jersey State Hospital, Trenton; author of Defective, Delinquent and Insane; aged 56; died, May 8, 1933, of angina pectoris and coronary embolism.

Dr. Cotton was a nationally-known psychiatrist. He was born at Norfolk, Va., on May 18, 1876, attended the public schools of Baltimore and prepared for his profession at the Polytechnic Institute in Baltimore. He later studied at the Johns Hopkins University and the University of Maryland. St. John's College, Annapolis, Md., bestowed upon him the honorary degree of master of arts in 1914. e

After serving at State hospitals at Worcester and Danvers, Mass., he became medical director of the New Jersey State Hospital in 1907. He was generally credited with having revolutionized methods of caring for and cure of the insane. It was claimed for him that his researches obtained a recovery rate of eighty-seven per cent, against one of thirty-seven per cent. before his work started. He lectured widely in this and other countries.

Dr. William Thomas Councilman, York Village, Me.; class of 1878; for 30 years Shattuck professor of pathological anatomy, Harvard University Medical School, Boston; aged 79; died, May 21, 1933, of cardiac disease. He studied at the Universities of Vienna and Leipzig and received honorary degrees from Harvard, Johns Hopkins, McGill and Maryland. He was associate, and associate professor of pathology, Johns Hopkins University, 1886-1891; and 1892-1922, Shattuck professor of pathological anatomy, Harvard University Medical School. 1904-1909, he was a member of the Council on Medical Education of the American Medical Association and 1909-1917, a member of the Board of Trustees of the Association. He was a fellow of the American Academy of Arts and Sciences and of the Philadelphia Academy of Medicine, a member of the National Academy of Sciences, American Association of Pathologists and Bacteriologists, American Physiologic Society and the American Philosophical Society. He was the author of Pathology, A Manual for Teachers and Students and monographs on dysentery, cerebro-spinal meningitis, diptheria, smallpox. He was a son of the late Dr. John T. Councilman, class of 1844 and an alumnus of St. John's College, Annapolis, Md. After being relieved from teaching at Harvard, he received a teaching three-year visiting fellowship at the Union Medical College of Peiping, China. He was on the steamship Robert Dollar when it was wrecked in the Yangtze River. By his death, the Medical School of the University of Maryland has lost one of its most distinguished alumni.

Dr. Josiah Evans Cowles, Los Angeles, Calif.; class of 1880; aged 78; died, June 14, 1933, of cardiac disease. For nearly half a century he was one of the outstanding figures in the medical, civic and religious life of Los Angeles.

Dr. Cowles, was fifth in line of Josiah Cowles, early settler of Connecticut. He was born at Hamptonville, N. C., May 14, 1855, and received his grammar school education at Lenoir, N. C. While at Lenoir, he received an appointment, through competitive examination, to a cadetship at West Point but, acceding to the wishes of his mother, who feared for his health, failed to take advantage of the offered honor.

After having been graduated from the University of Maryland, Dr. Cowles went to Johnston, S. C., and practiced medicine for nine years, excepting for the time spent at New York in taking a post-graduate course at Polyclinic and in acting as superintendent of a lying-in hospital on Second avenue.

Dr. Cowles came from Johnston to Los Angeles in 1887 and for more than forty-three years practiced the healing art in this city. Returning east for a brief period, he married Miss Ione Virginia Hill at Western Springs, Ill., and then returned to Los Angeles to continue his work.

For thirty years Dr. Cowles was chief examiner in Los Angeles for the Equitable Life Assurance Company. Other important positions he held included the presidency, for twelve years, of the Playground Commission. He also had been a member of the Health Board and the Lunacy Commission. He was a member of the Historical Society of Southern California and of the Sons of Colonial Wars.

A lover of literature, music and art, Dr. Cowles had filled his home with rare books, pictures and masterpieces of the great composers, which he enjoyed with his friends.

Besides his widow, Dr. Cowles leaves his sisters-in-law, Miss Anna L. Hill, Mrs. Edward A. Geissler and Mrs. William A. Peterson, the latter of Chicago; his brothers-in-law, E. A. Geissler and W. A. Peterson, and his cousins, Dr. J. G. Evans, head of the hospital in United States Public Health Service at San Diego; Col. C. D. Cowles, U.S.A., retired, of Hartford, Conn.; C. H. Cowles, member of the North Carolina Legislature; Hugh R. Cowles and Mrs. L. B. Bristol of Statesville, N. C.; Mrs. R. O. Self of Raleigh, N. C.; Maj. Miles A. Cowles, instructor of mathematics at West Point; William H. H. Cowles, instructor of mathematics at Pratt Institute, Brooklyn, N. Y.; William H. Cowles and Capt. Stuart Lee Cowles, in government service in the Philippines; Maj. David H. Cowles of the War College at Washington, D. C., and Mrs. Thomas Finley of Wilkesborough, N. C.

DR. BYRON STILLMAN CRANSTON, New London, Ohio: B. M. C., class of 1893; aged 64; died, June 13, 1933, of nephritis.

DR. JOSEPH JORDAN DESHLER, Glidden, Iowa, P. & S., class of 1880; aged 76; died, March 31, 1933, of hepatic cirrhosis and diabetes mellitus.

DR. JAMES EARLE DULL, Somerset, Pa.; class of 1914; past president of the Somerset County Medical Society; served during the World War; aged 43; died, March 23, 1933, of acute nephritis.

DR. LEWIS FISH, Fitchburg, Mass.; B. M. C., class of 1898; aged 62; died, June 3, 1933, of angina pectoris.

DR. MORTON BYRON FISHBAUGH, Celina, Ohio; P. & S., class of 1893; president of the Mercer County Medical Society; aged 67; died, May 30, 1933, consecutive to an operation for gall-stones.

DR. DAVID S. FISHER, Reading, Kansas, P. & S., class of 1884; aged 75; died, May 15, 1933, of cardiac disease.

DR. JOSEPH FRANK FLEMING, Trout Run, Pa.; P. & S., class of 1884; aged 72; died, April 23, 1933, of lobar pneumonia and myocarditis.

DR. MATTHEW C. FREILINGER, Baltimore, Md., class of 1906; aged 59; died, July 5, 1933, of cardiac disease.

DR. JEFFERSON D. FUNDERBURK, Lancaster, S. C.; P. & S., class of 1889; aged 71; died, in March, 1933.

DR. JAMES CALHOUN HARRIS, Anderson, S. C.; class of 1883; aged 74; died, May 8, 1933, of angina pectoris. He was the son of Ezekiel Harris and his wife, Adelaide Armstrong. He obtained his preliminary education at the Patrick Military Institute of Anderson. After graduating in medicine he served two years as an interne at the University of Maryland Hospital. He entered the practice of medicine at Belton, and while there married Annie McFall, a daughter of the late Mr. and Mrs. John McFall. Dr. Harris located at Anderson in 1891, where he continued to live until his death. In 1926, Dr. Harris married as his second wife, Mrs. Lucia Robinson, by whom he is survived, and the following sons and daughters, Dr. Herbert H. Harris, Claude E. Harris, Mrs. Jean M. White, Mrs. Floride Ligon, Mrs. Helen Edwards, Mrs. Georgia Cranford, J. Cal Harris. He was one of the prime movers and a founder of the Anderson County Hospital. He was one of the foremost practitioners of medicine in his section of the country and almost to the last was actively engaged in the practice of his profession. He was a fellow of the American College of Surgeons.

DR. GEORGE W. HINCHEE, Oklahoma City, Okla.; B. M. C., class of 1894; St. Louis College of P. & S. (1895); aged 73; died, March 11, 1933, of hypostatic pneumonia.

DR. ANDREW COOK JOHNSON, Garfield, Ga.; B. M. C., class of 1897; aged 60; died, February 20, 1933, of coronary thrombosis and arteriosclerosis.

DR. KARL SELLERS KENNARD, N. Y.; B. M. C., class of 1899; aged 56; died, April 9, 1933, of lobar pneumonia and chronic myocarditis.

DR. GEORGE W. KERNODLE, Washington, D. C.; P. & S., class of 1886; aged 72; died, May 2, 1933, of pneumonia.

DR. JOSEPH BASCUMB KIRK, Bluefield, W. Va.; P. & S., class of 1886; served during the World War; aged 69; died, April 19, 1933, of cardiac disease.

DR. SAMUEL B. KOSER, Sebring, Fla.; B. M. C., class of 1891; aged 67; died, April 9, 1933, of chronic myocarditis and arteriosclerosis.

DR. JOHN POLLARD LABARRE, Ottawa, Ill.; class of 1901; veteran of the Spanish-American War; aged 55; died, March 8, 1933, of cerebral hemorrhage.

DR. JAMES C. LITTLETON, Baltimore, Md.; class of 1883; aged 85; died, June 9, 1933, of bronchopneumonia.

DR. JOSEPH JOHN MAHADY, Brooklyn, N. Y.; B. M. C., class of 1893; aged 65; died, February 10, 1933.

DR. JOHN COLBERT MCAFEE, Macon, Ga.; B. M. C., class of 1898; aged 59; died, March 27, 1933, of cardiac disease.

DR. LAWRENCE EDWARD MCDANIEL, Jackson, N. C.; class of 1911; aged 52; died, May 3, 1933, of acute cholecystitis and bronchopneumonia.

DR. WINTHROP ESSEX MCGINLEY, New London, Conn.; P. & S., class of 1914; past president and secretary of the New London County Medical Society; served during the World War; aged 47; died, April 27, 1933, of cardiac disease.

DR. B. ARTHUR MIDDLETON, Emmerton, Va.; P. & S., class of 1877; aged 77; died, April 3, 1933, of cardiac disease.

DR. JAMES MCTEER MILLER, Wytheville, Va.; P. & S., class of 1896; aged 63; died, March 12, 1933, of myocarditis.

DR. JOHN E. MOORE, Shiloh, Ohio, P. & S., class of 1890; aged 75; died, April 6, 1933, of arteriosclerosis and myocarditis.

DR. AURELIUS L. PETREE, Greensboro, N. C.; P. & S., class of 1886; aged 74; died, April 16, 1933, of angina pectoris and myocarditis. Dr. Petree was born in Forsythe county, N. C., January 17, 1859. His parents were the late Reverend James Edward and Matilda Petree.

DR. ROBERT LEE RAMEY, El Paso, Tex.; class of 1892; fellow of the American College of Surgeons; aged 63; died, March 31, 1933.

DR. JAMES JULIUS RICHARDSON, Washington, D. C., class of 1889; formerly clinical professor of otolaryngology, Howard University School of Medicine; fellow of the American College of Surgeons; aged 60; died, June 28, 1933, of cardiac disease. After graduating, he took special work at the Universities of Edinburgh, Vienna and Heidelberg. During the World War he served as a consultant on several special examining boards handling ear, nose and throat cases. Dr. Richardson was recognized as one of the leading nose and throat specialists in this country. He served as physician to Presidents Taft, Theodore Roosevelt and Harding. On their stumping tours during their presidential campaigns, Taft and John W. Davis had him with them to care for their throats. He was a fellow of the American Academy of Opthalmology and Otology and a past president of the Clinical Society of Washington, D. C. He was born at Sardis, Ohio, January 18, 1873.

Dr. James L. Ridgely, Baltimore, Md.; class of 1888; a city health officer; aged 65; died, May 24, 1933, of myocarditis. He was born at Cherry Hill, Md. and was a son of Henry C. Ridgely.

Dr. Moe Robinson, Elizabeth, N. J.; P. & S., class of 1908; aged 47; died, March 13, 1933, of bronchopneumonia.

Dr. Frederick John Schnell, North Tonowanda, N. Y.; B. M. C., class of 1905; aged 56; died, May 5, 1933, of coronary thrombosis.

Dr. William Potter Shaw, Berlin, Pa.; class of 1893; aged 66; died, March 13, 1933, of chronic nephritis and myocarditis.

Dr. John Hansford Thomas, Greenville, Va.; B. M. C., class of 1896; aged 60; died, February 1, 1933, of cardiovascular renal disease.

Dr. Worth A. Thompson, Rutherfordton, N. C.; P. & S., class of 1885; aged 70; died, February 28, 1933.

Dr. Leonard James Turlington, Baltimore, Md.; class of 1892; aged 77; died, March 3, 1933, of injuries received in an automobile accident.

Dr. J. Harry Ullrich, Baltimore, Md.; B. M. C., class of 1897, associate professor of gastro-enterology at his alma mater; a lieutenant-colonel in the Medical Corps of the United States Army during the World War; aged 58; died, June 27, 1933, of multiple pancreatic abscesses.

Dr. Eugene E. Webster, Woodhull, N. Y.; P. & S., class of 1882; county coroner; member of the board of education; aged 76; died, March 15, 1933, of bronchial asthma.

Dr. Reuben D. Whistler, Findlay, Ohio; B. M. C., class of 1892; formerly county coroner; aged 66; died, June 14, 1933, of cardiac disease.

Dr. Robert Pearl Woods, Oak Hill, W. Va.; P. & S., class of 1913; medical superintendent of Oak Hill Hospital; aged 47, died, April 16, 1933, of pneumonia.

Dr. Jacob H. Yount, Newton, N. C.; class of 1876; aged 81; died, April 1, 1933, of carcinoma of the prostate gland.

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NEW MEDICINAL PRODUCTS SUGGESTED BY SCIENTIFIC RESEARCH[1]

By C. JELLEFF CARR, B.S.
BALTIMORE, MD.

Faced with the veritable deluge of new medicaments that appear annually on the drug market, the practioner of medicine finds it increasingly difficult to keep abreast of the tide. It is therefore the purpose of the author to present a critical survey of some recently developed medicinal products. Needless to say, much of the information herein presented has been taken from the original reports in the scientific literature. No doubt future work will disprove some of the material reported in this paper, but it is deemed of sufficient interest and value at this time to survey some of the most promising drug products.

THE SEX HORMONES

No phase of medical research has produced more spectacular results in recent years than that carried on in the field of the sex hormones. For convenience the subject may be divided into three topics: the female sex hormones, the male sex hormone and the sex hormones of the pituitary body.

The Female Sex Hormones.—A great advance in the study of the internal secretions of the ovary was made possible by the use of the vaginal smear technique of Stockard (1). This investigator observed that marked changes take place in the type of cells found in the vagina of the guinea-pig during the sexual cycle. This cycle in the rat lasts from four to six days. The period is divided into five stages. Each stage of estrus is differentiated from the preceding one by the type of cells found in the scrapings from the vaginal wall. Ovariectomized rats will not demonstrate all five stages of estrus but when an extract of the ovarian tissue containing the estrus-inducing hormone is injected into these animals the normal cycle is resumed for a period of time. Thus a method of measurement of the degree of activity of an extract in question is available. The potency is expressed in terms of rat units. A rat unit is the amount of hormone necessary to induce estrus as judged by vaginal smears in ovariectomized sexually mature rats. Allen and Doisy (2, 3) in their pioneer work on ovarian preparations originally developed and expressed their extracts in terms of rat units, hence the unit is termed the Allen and Doisy rat unit. A number of extractive preparations are sold today which represent the active principle of the female reproductive organs. It has been definitely established that an estrus-inducing hormone can be obtained from the ovaries, the placenta, the blood and urine of pregnant animals and the amniotic fluid. These preparations are represented under the following names:—

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[1] Isaac Emerson Fellow, Department of Pharmacology, University of Maryland School of Medicine.

Oestrin or Estrin
Trihydroxyestrin
Female sex hormone
Feminin
Folliculin
Amniotin
Menformon
Ovarian follicular hormone
Estrogen

Recently E. A. Doisy of St. Louis University, has obtained in a crystalline form a hormone which is claimed to be the estrus-inducing hormone of the ovary (4). The crystalline material has been named theelol. It occurs as colorless rhombic crystals soluble in water. The exact chemical nature of the compound is not known. With a crystalline material available for study the physiological chemist should not be long in discovering its exact nature and making available a synthetic source of this hormone.

All the products of this type employed as medicinal agents are assayed for their rat unitage and the potency is expressed on the label. Theelol in the crystalline form, it is interesting to note, possesses a remarkable activity of approximately 3000 Doisy rat units per milligram.

The author has seen no evidence presented in the literature which shows these preparations to be without some value in therapeutics. The disappointments which have followed frequently the use of follicular preparations are undoubtedly attributable to their small content of active hormone. Prior to the isolation of the crystalline substance enormously large doses were usually necessary in order to effect the response desired on the part of the patient. With this difficulty solved the clinician should find a more reliable and valuable addition to his available drug products for the treatment of conditions resulting from a deficiency of the estrus-inducing hormone.

The corpus luteum hormone, progestin, has not yet been isolated in pure form. Our knowledge of this hormone is fragmentary. Animal experiments seem to prove however that the ovarian follicular hormone is not the only hormone produced by the ovary. It is believed that progestin is present only in the latter stages of the menstrual cycle, and is largely antagonistic to theelin (5, 6). Only one preparation is marketed that claims to possess progestin hormone activity. This product is known as lipo-lutin. Further studies will be necessary before this hormone is available as a well recognized drug product.

The Male Sex Hormone.—Extracts of the male reproductive glands made by Koch (7) and his co-workers have been found to produce remarkable increases in the sizes of combs and wattles of castrated cocks. More recently Womack and Koch (8) have been able to demonstrate hormone action in extracts of male urine. Surprisingly enough the urine from females yielded quantities of the hormone of the same order as did males. Probably the hormone involved here was the universal sex hormone of the anterior pituitary body. The whole gland, desiccated, and containing both spermatogenic and the internal secretion cells of Leydig has been used for a number of years in medicine. It is commonly called orchic substance. While orchic substance has been used experimentally in sterility in the male, the evidence presented indicates only a suggestion of therapeutic value. The male sex hormone is little more than a scientific curiosity and further investigation will determine if this hormone will be of value in therapeutics. Recently some experiments carried out on the sex stimulating hormones of the anterior pituitary indicates that perhaps in the pituitary gland will be found a hormone of value in the treatment of sexual disorders.

The Pituitary Sex Hormones.—It appears that the ovary is not the all-important factor in regulating the mechanism of menstruation and ovulation. The ovary is dependent for its activity on stimulation by a hormone elaborated by the anterior lobe of the pituitary. Exactly how many hormones the anterior pituitary produces is not known. A growth hormone (9) and a sex hormone (10) have been demonstrated. The hormone or hormones are active in the male and female and have been referred to as "the universal sex hormone." The latest achievements in this field have been the preparation of extracts of the urine of pregnant women which exert a similar effect to that of extracts of the anterior pituitary. The extracts are capable of producing estrus in immature female rats. However, unlike the estrus-inducing hormone these extracts are incapable of producing estrus in animals from which the ovaries have been removed. Preparations containing the sex-active principles of the anterior pituitary are being manufactured by several pharmaceutical houses. Antuitrin-S and Follutein are outstanding examples. In the male, anterior lobe extracts have been used with favorable results in acromegaly and certain types of obesity as dystrophia adiposogenitalis and in some forms of impotency.

THE ADRENAL HORMONES

The active extract of the medullary portion of the adrenal has found a well deserved place among the drug products used by the physician. Epinephrine is well ensconced in the Pharmacopoeia and is no longer classed as a new drug. Of the cortical portion of the adrenal much can be said. Swingle in a splendid series of experiments isolated an active principle from the cortex (11) which is known as cortin. Swingle and his co-worker Pfiffner were able to keep adrenalectomized cats alive and in normal condition for an indefinite period of time by feeding them extracts of the cortex of the adrenal. Rowntree (12) first described the striking clinical results obtained by administering these extracts to patients suffering with Addison's disease. An exceedingly valuable drug has thus been made available for the treatment of this more or less obscure disease. Unfortunately the extracts have to be administered by hypodermic injection. Active extracts of the adrenal cortex have also been obtained by Hartman (13) and Stewart and Rogoff (14).

Recently Hartman has suggested an ingenious method of testing the potency of cortin extracts (15). By injecting adrenalectomized rats with the extracts they are more able to resist cold temperatures. When an adrenalectomized rat is exposed to a freezing temperature its body temperature drops about 12°C., the animals which have received cortin extracts behave like normal animals which show no change in body temperature. With a reasonably accurate and simple method of assay at hand much more interesting work may be expected from these workers.

For clinical usage one manufacturer has prepared an extract according to the method of Swingle and the product is marketed under the trade name of eschatin. Satisfactory results of the use of this product have been reported in the literature. Harris (16) in a heroic series of experiments on four hundred and fifteen patients reports a dismal failure on the benefits of the use of extracts of the cortex in the treatment of malignant tumors. He concludes, "Cure of malignant diseases . . . . cannot reasonably be expected to occur as a result of the use of suprarenal cortex extracts." One cannot help but admire the dogged persistence of this investigator in tracking down a clue which might have led to a brilliant discovery.

RECENT EPINEPHRINE-LIKE COMPOUNDS

Since the work of Chen and Schmidt (17) in 1924 dealing fully with the pharmacology of ephedrine, an enormous amount of investigational work has been carried out on this popular drug. The close chemical and pharmacological relation which ephedrine bears to epinephrine and the fact that ephedrine is effective by mouth makes the drug exceedingly interesting from a therapeutic standpoint. The popularity of ephedrine preparations makes a discussion of them unnecessary. Recently synthetic products have been developed which are worthy of mention. In 1929 Hartung and Munch (18) described a method of preparing phenylpropanolamine and ascribed to this compound pressor activity. These investigators found phenylpropanolamine to be as active as levo-ephedrine and to produce the characteristic responses of ephedrine. This synthetic compound was found to be active after oral administration. Phenylethanolamine has also been found to be a pressor substance but unlike the corresponding propanol compound does not persist in its pressor activity for long periods.

This is a fruitful field. Derivatives of epinephrine and ephedrine are being studied intensely (19). The mystifying differences between optical isomers and the effect of modification of chemical groupings are being studied. One investigator has predicted that perhaps some day will come a second Mendeleeff who will coordinate the physiological significance of functional groups and preserve regularity in structual sequence (20). Such a law of order would serve, of course, to guide the physiological chemist in his attempts to improve naturally occurring medicinal agents.

The hydrochloride of racemic ephedrine marketed as ephetonin is supplied for clinical usage and like the free base may be given orally, is more stable and is less toxic than epinephrine. The levo-ephedrine hydrochloride is the salt most commonly used.

TISSUE EXTRACTS

In extracts of the various tissues of animals there has been found by numerous workers a substance or substances that possess the power of inhibiting the pressor action of epinephrine, and produce a transitory fall in blood pressure. Gley and Kisthinios (21), Frey and Kraut (22) and Weber, Nanninga and Major (23) obtained active extracts of the urine, pancreas and brain respectively. More recently Elliot and Nuzum (24) compared the activity of the extracts and report that the active principles are the same. Various names have been given the active principle of these preparations such as desympatone and kallikrein. Enthusiastic reports of the clinical use of these extracts in angina pectoris and other angiospastic syndromes have been set forth in the literature (22, 21, 24, 25). These extracts are being investigated extensively.

One manufacturer in this country is supplying an extract of the pancreas for use clinically. It is called tissue extract No. 568. As our knowledge of this substance grows one may look with interest for more potent and valuable products to be developed. Whether the substance is a parasympathetic hormone remains to be discovered.

CONCLUSION

The effusion of drug products that results annually from the scientific observations made in the laboratory and clinic can be utilized advantageously by the physician who is familiar with at least part of the vast literature. Keeping abreast of the literature is a stupendous task. Therefore if in reviewing a few of the recent drug products, some point has been made clearer or some new fact presented, this effort shall be considered worthwhile.

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SPINAL ANÆSTHESIA[1]

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When Corning first suggested the possibilities of conduction anæsthesia, a field was opened that eventually resulted in a new type of analgesia that is a radical departure from the pulmonary or inhalation type; namely, spinal or subarachnoid anæsthesia.

Since the time that Wayne Babcock presented it as a definite, and practical anæsthetic that could be used extensively, many papers have been written on the subject. While more and more clinical and experimental data were being compiled, the number of spinal advocates increased with great rapidity. Nevertheless, the most ardent supporters now admit that, while ideal for a vast group of cases, it is not the panacea that was first anticipated.

There is deservedly a great deal of thought and discussion regarding the safety of this method. Clinical data have very definitely established the fact that it has certain limitations just as other anæsthetic agents. Therefore, its field of usefulness cannot yet be rigidly outlined.

Over a period of three years at the University of Maryland Hospital, a series of 233 cases, personally administered, present a rather interesting statistical study. It illustrates that during the establishment of confidence in intraspinal injections of novocaine or its derivatives it has been resorted to more and more and in an increasing variety of cases. In 1930 it was administered in 33 cases and was limited to low abdominal and lower extremity work.

In 1931, I administered it in 65 cases, which represents approximately a 50 per cent increase over the number of cases in 1930. Concurrent with the increase in the total number of cases, there was also an increase in the variability of cases for which it was used. In addition to conditions below the umbilicus, it was used successfully for all operations below the diaphragm.

In 1932 it was used in 132 cases. In the entire series of 233 cases the following operative classification is represented:

Hernioplasty (inguinal, femoral, ventral)	76
Appendectomies (including those with peritonitis)	51
Genito-urinary (including 21 prostatectomies)	33
Lower extremities (including amputations)	22

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[1] From the Department of Surgery, University of Maryland.

Colon and rectum	16
Small intestines (excluding duodenum)	10
Gall-bladder	9
Stomach and duodenum	7
Exploratory laparotomies	6
Pelvic viscera (female)	3
Total	233

In this series there were 14 postoperative deaths which, considering the type of cases selected, should be considered low. A careful analysis of each case, I believe, will convince the reader that the type of anæsthetic used played no part in the ultimate outcome.

Case 1. C. S., age 44 years. Diagnosis: Strangulated inguinal hernia. Mentally confused at the time of admission due to influence of alcohol. Hernioplasty performed. Developed delirium tremens. Three days postoperatively, he developed an axillary temperature of 102.8, pulse 120, respirations 29. Died nine days following operation.

Case 2. J. J. W., age 53 years. History of having been operated on three years previous to present illness for appendiceal abscess. Admitted with diagnosis of intestinal obstruction; badly shocked and markedly dehydrated. He was given supportive measures which was followed by an enterostomy. Postoperatively, his symptoms persisted and he died ten hours later. Autopsy findings: General development female type; distended intestines (entire) with the lower ileum constricted by a dense band of adhesions to the abdominal wall.

Case 3. T. M., age 41 years. History of pain in abdomen one week previous to admission. Laparotomy revealed a postcecal, postperitoneal appendix with abscess which was drained. Seven days postoperatively he developed obstructive symptoms and an enterostomy was performed. For two days he seemed to improve and then expired on the third.

Case 4. J. W. P., age 63 years. Diagnosis: Strangulated femoral hernia with peritonitis. Semi-comatose at time of admission. Eight inches of intestine were resected. A Murphy-button anastomosis was performed. Abdomen drained because of localized peritonitis. Developed symptoms of general peritonitis and died five days postoperatively. Autopsy: Generalized fibrino-purulent peritonitis. Anastomosis had broken down at mesenteric angle and had been source of infection.

Case 5. M. C., age 59 years. Diagnosis: Generalized peritonitis, with râles in bases of both lungs. Laparotomy revealed a generalized purulent peritonitis with a pelvic abscess. Exudate was odorless and green tinged. Appendix and both tubes were covered by thick exudate. Cultures showed organisms of pneumococcic group. Died three days postoperatively.

Case 6. T. W., age 44 years. Admitted through the Accident Room, intoxicated and with diagnosis of fractured right third, fourth and fifth ribs; fractured right tibia and fibula. Developed intestinal obstruction. Laparotomy revealed an obstruction of the ileum as result of adhesions. Symptoms persisted postoperatively and he died 24 hours later. Autopsy revealed no other lesions.

Case 7. A. F., 69 years. Admitted with diagnosis of strangulated femoral hernia. Symptoms were of four days' duration; patient was quite shocked at time of admission. Examination revealed evidence of a broncho-pneumonia. At operation, the intestine was found discolored. Its color improved with application of warm towels and it was dropped back into the abdomen and a hernioplasty was performed. Patient died 36 hours later. Autopsy showed a gangrenous loop of intestine with localized peritonitis and intestinal obstruction; chronic nephritis; cholelithiasis; fibrous pleuritis; broncho-pneumonia at base (bilateral).

Case 8. F. G., age 60 years. A diagnosis of carcinoma of the pylorus had been made and the patient was undergoing preparatory treatment for operation, when he developed an acute condition in the abdomen. Laparotomy revealed a large perforation in the carcinomatous area. An attempt was made to close the opening with the gastrocolic and gastrohepatic omentum and an anterior gastro-enterostomy was performed. Postoperatively, the patient drained quite freely and died seven days later.

Case 9. M. G., age 78 years. Diagnosis: Incarcerated umbilical hernia. At operation, in addition to the above, exploration revealed a carcinoma of the tail of the pancreas with metastases. There was also cholelithiasis. Her non-protein nitrogen gradually increased until five days postoperatively it was 150. She died seven days postoperatively in uremic coma.

Case 10. B. C., age 48 years. Diagnosis: Generalized peritonitis following an acute surgical accident. In addition, at the time of admission, there were râles in the bases of both lungs. Exploration revealed a diffuse, plastic peritonitis with kinking of the intestine. There was a history suggestive of typhoid fever. No definite perforation was found, although a small one may have been covered by the plastic exudate. Patient died six days postoperatively.

Case 11. F. B., age 67 years. Diagnosis: Carcinoma of colon at junction of the descending and sigmoid portions. In addition, the patient had diabetes and had had her right leg amputated one year previously. The carcinomatous area was resected. Two days postoperatively, she developed a generalized peritonitis and died on the third day.

Case 12. F. M., age 63 years. Laparotomy revealed an abdomen filled with bile-stained fluid. Exploration showed a carcinoma of the head of pancreas that had extended into the wall of the stomach itself. There were metastatic nodules to the mesentery and liver. In addition, the gall-bladder was distended with stones. There was a metastatic carcinomatous nodule in the region of the common bile duct and this was probably accounting to a large extent for her obstructive jaundice. A cholecystgastrostomy was performed after the cholelithiasis had been evacuated. She stood the procedure very well and her condition remained satisfactory for 24 hours but at the end of this time she developed persistent nausea and vomiting. Her pulse became rapid and thready and she expired 12 hours later, or 36 hours postoperatively.

Case 13. F. J., age 58 years. A nephrectomy was performed because of multiple abscesses of the kidney (carbuncular). Patient's postoperative course was quite stormy and he died eight days later.

Case 14. K. R., age 62 years. Exploratory laparotomy revealed carcinoma of the splenic flexure of the colon. The intestine was tremendously ballooned. Cecostomy was performed. Later, if her condition warranted, she was to have a resection. Previous to the laparotomy, it was necessary to give her saline infusions and intravenous glucose in order to get her in physical condition to justify exploration. Her course was quite stormy and she died six days after operation.

These fourteen cases, embracing all types of surgical conditions, fairly represent the entire series. With a single exception, there were no serious reactions while on the table. If there were any postoperative reactions, due to the type of anæsthetic used, they would certainly fall in the above group. For that reason each has been presented separately.

The ages varied from 12 to 80 years. The old reacted as well as the young. All things being equal, age apparently is not an important factor in the satisfactory outcome, so long as a reasonable degree of cooperation is obtained.

As stated above, with one exception, there were no serious reactions during the period of anæsthesia. This occurred in an obese woman, 54 years of age, who developed a large postoperative ventral hernia subsequent to an upper right rectus incision. A spinal injection of 120 mgm. of novocaine crystals in 2.5 cc. of spinal fluid was given in the first lumbar interspace. The operation was well under way, the contents of the hernial sac had been reduced, when she complained of shortness of breath. Her voice faded to a whisper and finally she became stuporous. Her respirations became extremely shallow and, at times, practically ceased. Her blood pressure, however, remained comparatively normal, and the color of her tissues good. She was given supportive measures consisting of carbon dioxide and oxygen, strychnine, caffeine and intravenous glucose to which she responded readily. Consciousness returned, and by the time the operation was completed, her condition was considered satisfactory. Subsequently, her convalescence was uneventful. With our present understanding, it is now felt that she was not an ideal subject for spinal anæsthesia. She was the short, obese, thick-necked type, and had a high pulse pressure.

Our clinical observations have confirmed the opinion expressed by Bower, Clark, Wagoner and Burns that the most important single factor in the causation of a fall in blood pressure is poor respiratory exchange. For this reason, the most important consideration in the selection of a patient for spinal anæsthesia is a careful study of the myocardial reserve.

The reason this study of the heart musculature is so essential is explained, anatomically, on the grounds that paralysis of the intercostal and phrenic nerves interferes with the physiological chest expansion and diaphragmatic excursions. Under these circumstances, there is a stagnation of blood in both lungs and subsequent failure of the left heart to maintain an adequate volume. Such a phenomenon, in time, causes a damming back of venous blood into the right heart and the great vessels of the chest. This produces an increase of both blood volume and blood pressure for the pulmonary circulation.

In determining the myocardial reserve, one should look for the following:

"1. Weak or distant heart sounds.
2. High diastolic pressure (110 or over).
3. High pulse pressure (70 or over).
4. Electrocardiographic tracing positive for myocardial disease."

I agree with them that, if any two of the above are present, a spinal anæsthetic is contraindicated.

Once a patient is considered a fit subject for this type of anæsthetic, there is another equally important factor to be considered, and that is the proper administration of the drug. To successfully do this, one should be familiar with the chemistry of the particular drug used. In the University of Maryland clinic we formerly used novocaine crystals exclusively, but more recently we have used, in addition, a preparation known as pantocain.

In all cases of this series, the site of injection depended upon the type of operation to be performed, as well as the height of the incision. I do not consider it necessary to produce anæsthesia at a higher level than is conducive to a satisfactory operation. This precaution minimizes the operative risk, as well as the patient's discomfort.

For the perineal region or the lower extremities, the third interspace is usually selected. For low abdominal work such as appendectomies, sigmoidal resections, etc., the second interspace is usually selected. For gall-bladder, stomach and duodenal work the first interspace is most often selected. The latter site is considered preferable to a higher injection and, if necessary, gas may be administered as a supplementary procedure. In the series, this was necessary in two instances. In every instance, relaxation was obtained by administering nitrous oxide and oxygen.

In considering the height of anæsthesia, the site of injection is the most important factor. However, other factors related to its control are the chemistry of the drug itself, dosage, dilution ratio, specific gravity and the force of the injection. The pressure of the spinal fluid itself influences, in large measure, the technique. When the pressure is low a greater diffusion results. When it is high there is less.

This entire series has been conspicuously free of postoperative headaches and other discomforts. This has been more noticeable since we began to follow the puncture technique first described by Sise. This technique, briefly, is as follows:

A cannula $1\frac{1}{4}$ inches long with a sharp cutting edge is inserted through the skin and posterior spinous ligament. This serves as a brace for a # 22 gauge needle with a conical point which is carried through the dura. This size needle is smaller and more flexible than the ordinary spinal puncture needle.

After obtaining spinal fluid, the technique of injection depends upon the type of drug used. The outstanding advantage of this technique is that a much smaller puncture is made in the dura. The loss of spinal fluid, thereby, following operation is minimized. This decreases the probability of postoperative headache. In addition, after one has become familiar with the technique the puncture is facilitated.

In the early cases of this series, ephedrine was used routinely except in hypertensives. For the past year, this practice has been discontinued. Since then, no greater average drop in blood pressure has been noted than before. In addition, the patients appear more comfortable during operation than formerly. Some authorities believe that the great fall in blood pressure formerly seen was due to an abnormally elevated pressure resulting from ephedrine that suddenly fell because of a combination of effects. In other words, there is a diminishing effectiveness of the ephedrine and a resulting drop that usually occurs in conjunction with the spinal injection. It is felt that ephedrine used as a routine preoperative preparation may, at times, produce unnecessarily alarming symptoms. As stated already, some authoritives believe that as long as there is adequate respiratory exchange, there is no alarming fall in blood pressure.

Preoperative preparation since the routine use of ephedrine has been abandoned simply consists of routine measures instituted in any major operative procedure. In the aged or cachetic type of cases, 7½ grains of caffeine sodium benzoate are injected hypodermically 15 minutes before operation. I have observed that, with this injection, these patients complain much less of shortness of breath.

In the entire series, there was also a noticeable lack of pulmonary complications. This is, in my opinion, due to the fact that in all high abdominal cases carbon dioxide and oxygen were used following operation to stimulate deep breathing and to prevent the development of atelectasis. The low abdominal cases were turned from side to side every two hours and deep breathing encouraged.

In this series, two different types of drugs were used; that is, novocaine crystals and pantocain. During the past year, the latter drug was used in all cases if a prolonged surgical procedure was anticipated. The average fall in blood pressure for the relatively small number of cases in which it was used, was less for pantocain than for novocaine. The diastolic pressure remained practically unchanged. The average systolic drop for pantocain was 8 to 10 mm. of mercury, while that for novocaine was 18 to 20 mm. of mercury. In poor risks, an intravenous injection of saline and glucose was usually started at the beginning of the operation.

With the use of pantocain, the duration of anæsthesia has been as long as two to two and one-half hours over the lower abdomen. As a matter of fact, one case had anæsthesia for two hours and forty minutes. For high abdominal work the duration varies from one and one-quarter to two hours.

The dosage of novocain was 120 to 150 mgm. depending upon the individual patient and type of operation. Relative to the dosage of pantocain, the suggestion of Lundy was followed. He stated 1 mgm. per ten pounds of body weight plus five should be used. His maximum dosage was

25 mgm. In my series, the largest dose administered was 22 mgm. No unfavorable reaction was observed.

Where prolonged spinal anæsthesia is indicated, it is, I believe, one of the nearest approaches to the ideal. This is especially true for low abdominal and lower extremity work where prolonged anæsthesia is desired. For high abdominal work, in my experience, it has not proven as uniformly satisfactory as novocain. This was probably true because the site of injection was not sufficiently high. When using it, an interspace higher was selected than with novocaine. However, no injections were made in the 12th interspace.

For properly selected cases, there is, in my mind, no more ideal method for the production of anæsthesia for operative procedures below the diaphragm than the spinal method. This is especially true for low abdominal and lower extremity work. In intestinal obstruction, strangulated hernias, etc., there probably has been nothing more conducive to satisfactory surgery. It is true it has definite contra-indications just as is the case with other anæsthetics. In considering the type of anæsthetic to be selected, the patient must always be studied as an individual problem. In properly selected cases there certainly is no more ideal anæsthetic agent.

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THROMBO-ANGIITIS OBLITERANS

A Clinical Survey

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Thrombo-angiitis obliterans, so named by Leo Buerger in 1908, is a condition, which when thoroughly studied, does much to help differentiate the various circulatory disturbances of the extremities. It is for this reason that Buerger himself devotes so much time and study to this single disease entity.

The etiology of the condition is still unknown although there are many who believe that it is due to an infectious process which attacks the endothelial linings of the deeper vessels of the extremities. Almost every theory concerning its cause has had its exceptions. This statement is based in part on a series of two hundred cases reported by Allan and Brown (1). A study of other literature provides the remaining exceptions.

Among the many assertions previously accepted one may mention smoking with its accompanying "nicotinism." Three cases have been reported however, in which the patient never used tobacco. Buerger feels that although tobacco is an important factor, it merely tends to alter and predispose the vessel lining through chronic intoxication.

As pertains to the Hebraic tendency, it seems that if in a series of two hundred cases, 50 per cent were either Austrian, German, Scotch, Irish, English, Dutch, Greek, Finnish or American, this theory is no longer tenable. It is true that the Hebrew predominates in Buerger's experiences but Buerger's practice is particularly well represented by the Jewish element. The disposition to sedentary habits which has frequently been blamed is not borne out in this survey since about 80 per cent of all patients are actively employed—in some cases (2 reported in 1928) until treatment was begun.

Some investigators have considered a male endocrine disturbance responsible for the disease but even this theory has been jarred by the diagnosis of the condition in three women. In due justice to adherents of this theory, however, it must be added, that all three of these women recovered so that anatomical proof of their disease was never obtained.

One fact worthy of consideration is that in practically all cases studied, some demonstrable focus of infection was always present. With all that, however, chronic suppurative conditions can only be blamed as predisposing rather than immediate causes since the specific pathological reaction in this disease points towards a specific toxin or organism. In other words, the disease seems to be a specific reaction to a specific irritant.

The incidence of thrombo-angiitis obliterans is interesting for it has been classically conceded that it occurs, for the most part, in males, usually of Hebrew-Russian extraction, who have indulged quite freely in the use of tobacco, the age of those afflicted being between fifteen and fifty-five years. Here again exceptions are seen for not a few cases have been reported beyond the age of sixty and Cohill (2) has had a typical case which was proven anatomically in a child of two years whose symptoms began at the age of twenty months.

Clinically, the disease manifests itself by indefinite pains in the sole of one foot—usually the left, or the ankles or toes. This pain gradually progresses to the typical intermittent claudication. The ability to walk distances is gradually diminished so that finally the patient becomes bed ridden. After some weeks or years, depending upon the acuteness or chronicity of the process there arises trophic disturbances. A peculiar blush then sets in when the part is allowed to remain dependent for any length of time. This blush has been called by some "rubor" or "erythromelia." If allowed to progress the condition goes on to gangrene. Pain is then increased to such an extent that the patient begs for amputation. Pain is not only due to gangrene for some patients who are free from gangrene suffer intense pain.

The pathology of Buerger's disease, in brief, is an acute inflammation with occluding arterial thrombosis. Areas of giant cells are soon formed, as healing continues the giant cells and other products of inflammation disappear and the thrombus becomes organized. The impulse of the oncoming blood and the contraction of the newly formed fibrous tissue are believed to be responsible for canalization. Finally, the healed product becomes cord like and fibrous, for during the process of healing, connective tissue has gradually invaded the adventitia. In time the fibrous tissue of the external arterial coat becomes so extensive that it includes the neighboring veins and nerves. It is then, through irritation of nerve fibers and endings, that the pain becomes continuous. The pain due to walking in the early part of the disease is probably secondary to an ischemia of the muscles. In about 25 per cent of the cases reported, in addition to the angiitis, there is a migrating thrombo-phlebitis in the upper and lower extremities. It is important to remember that the upper extremity may be involved since there are those who still believe that Buerger's disease limits itself to the lower extremities.

The symptoms of thrombo-angiitis obliterans are somewhat different depending upon the acuteness or chronicity of the process. In the acute form, the symptoms are manifested by lancinating pains especially in the calf of the leg. Typical acute cases have been noted following rapidly forming toxic thrombi—sometimes streptococcic in nature. The chronic stage may be free from trophic disturbances but usually has all the other signs. In general it may be said that the chronic cases may be accompanied by such variations that innumerable types may result. Hence, in the considerations of the signs and symptoms it is to be borne in mind that any combination may occur to produce the clinical picture of a given case. Thus:

1. A limb may be livid, cyanosed, red, pulseless, atrophic, or edematous.
2. Ischemia may appear when the limb is raised to last for quite a while after it is lowered. This, incidently, may be used from the prognostic standpoint since the time required for the return of the limb to normal is proportional to the extent of thrombosis.
3. The hyperemia may be due to inflammation or vaso-motor defects.
4. Cyanosis may occur—due to capillary stasis.
5. Pain—usually present in every case—may be the only symptom present.
6. Absence of arterial pulsation over the dorsalis pedis or posterior tibial artery.

With regard to the latter it might be added that arterial pulsations need not necessarily have to be felt for blood to be actually flowing through an extremity. As a matter of fact, Silbert and Samuels (3) using the Pachon oscillometer have detected pulsations even when these were not palpable.

In short, this disease may be so paradoxical in its manifestations that although ordinarily the less the pulsation the more marked the symptoms, there are cases mentioned by Buerger (4) in which the symptoms have cleared up under treatment in spite of the fact that pulses previously palpable had disappeared. This indicates that collateral circulation might be so varied that it is a factor, after treatment has once been instituted, which is more worthy of consideration than the original channels—since, while the thrombotic process may go on to completion in the original vessels, improvement may still occur if the formation of newly formed collateral paths exceeds the rapidity with which original paths have become occluded.

Mental symptoms, when seen accompanying this disease, are usually of two types: either secondary to the devitalizing process which goes hand in hand with continued acute pain; or it is a true neurosis. When one considers that thrombo-angiitis obliterans usually attacks males in the prime of life who have domestic and economic responsibilities to meet, it is remarkable that mental symptoms do not more often play a part in the clinical picture.

The diagnosis of this affliction is not as simple as previously believed since, as previously mentioned, so many paradoxical phenomena may occur that in some cases even the best of clinicians may err in its diagnosis. For example, pain upon walking in combination with an ischemia; or spontaneous vasomotor ischemia followed by rubor and cyanosis may be easily confused with Raynaud's disease. The chronic redness with painful extremity seen in thrombo-angiitis obliterans may simulate erythromelalgia. Chronic atrophy and indurated skin sometimes seen in Buerger's disease may be mistaken for scleroderma or sclerodactyly. Hence, unless a systematic study is made of the clinical pictures of these conditions the entire category of extremity diseases becomes shaded by a haze of ignorance which can only result in confusion.

"For clinical diagnosis" Buerger states, "we must depend upon:

1. The racial (Hebrew) and sex (male) predilection.
2. The early involvement of the lower extremities.
3. The early symptom of pain—or intermittent claudication.
4. The presence of migrating phlebitis.
5. The evidence of pulseless vessels.
6. The presence of blanching upon elevation.
7. The existence of rubor in dependent portions.
8. The relation of hyperemic phenomena to posture.
9. The absence of simultaneous symmetrical involvements.
10. The slow progressive chronic course terminating in gangrene."

In the differential diagnosis, certain conditions must be considered and excluded before conclusions may be made. These conditions include arteriosclerotic gangrene, Raynaud's disease, erythromelalgia, acroparesthesia, multiple neurotic gangrene, scleroderma, sclerodactyly and chronic acro-asphyxia.

1. In *arteriosclerotic gangrene* the patient is usually senile and presents marked evidence of peripheral arteriosclerosis. The x-ray helps diagnosis at times by disclosing calcified areas along the main arterial trunk. In addition, the gangrene of the arteriosclerotic is usually unilateral.

2. *Raynaud's disease.*—While in thrombo-angiitis obliterans there are definite specific anatomical alterations in Raynaud's—and allied diseases the vasomotor and trophic disturbances result from irritative and exhaustive autonomic nervous phenomena. This statement is borne out by the fact that patients suffering from Raynaud's disease not uncommonly present normal extremities between attacks. This speaks against primary morphological involvement. Then again, Raynaud's disease occurs more frequently in females, is symmetrical in the toes and may involve the fingers, ears or nose. Pain is unaffected by position and may be excited by cold. When it occurs it is paroxysmal in nature. During these paroxysms of subjective pain, objective sensory studies frequently indicate analgesia or even complete anæsthesia. The vasomotor changes manifest themselves by pallor, ischemia, and local cold. Gangrene frequently culminates a clinical picture which may have persisted for years.

3. *Erythromelalgia.*—This condition occurs more in males than in females. It is asymmetrical in the feet and rarely bilateral. Pain precedes vaso-

motor phenomena and is aggravated by keeping the limb in a dependent position. Cold alleviates the symptoms which otherwise are more or less continuous. Superficial and deep tenderness frequently accompany this condition and vasomotor phenomena manifest themselves by adding a pinkish or purplish flush to the extremity. Gangrene is rare in this condition although increased pulsation and local heat may persist for months. This condition is frequently associated with other central nervous system disease, occurring primarily in association with functional disorders and secondarily to certain organic changes as for example cord tumors.

4. *Acroparesthesia.*—Acroparesthesia usually occurs in women of thirty-five to fifty-five years of age who continually use their hands and whose hands are frequently immersed in water of different temperatures. Hence, it is most commonly seen in charwomen or domestic servants. As its name implies, acroparesthesia is really a disturbed sensibility of the extremities (ends). The complaint in these cases is usually a burning sensation associated with a tingling and numbness in the fingers and palms. The symptoms are noted usually after work and are intensified by warmth. In the morning, the fingers feel dull, numb and clumsy but this sensation passes off with work only to reappear again in the evening after work is stopped. This condition usually affects both hands and is only rarely accompanied by foot involvement. Examination of these patients discloses somewhat hypesthetic fingers and palms. The epicritic sensibility suffers while the protopathic sense remains uninvolved. This combination is distinguished from posterior column cord lesions by the absence of proprioceptive defects and normal deep reflexes. In addition the skin of these patients hands are usually much thicker than normal which leads one to suspect that the nerve endings are at fault.

5. *Multiple neuritic gangrene.*—This condition is held by some to be identical with Raynaud's disease, i.e., a functional autonomic disease. Like in Raynaud's disease, the gangrene is symmetrical but these patients usually exhibit other signs of neuritis, e.g., tremor, paresis, wasting, hypo- or areflexia, electrical changes, chronic intoxication in the form of alcoholism or arsenic, etc., may precede the clinical picture.

6. *Scleroderma and sclerodactyly.*—These conditions are practically the same, the latter being a form of scleroderma limited to the fingers. Scleroderma with its hard or non-pitting edema can hardly be confused with a vascular disease such as Buerger's. Like in Raynaud's disease, sclerodactyly presents a roentgenogram of terminal phalangeal atrophy. In thrombo-angiitis obliterans the bone atrophy is not common until gangrene sets in and even then the terminal portions of the phalanges are the last to become rarified. It may be worth noting that late in thrombo-angiitis obliterans a typical clinical picture of scleroderma with its thick skin and

apparent obtundation of sensation may occur—but the absence of pulsation usually quite easily differentiates the two conditions. In brief, one may regard the sclerodermal patient as one suffering from a localized myxedema. Indeed recent attempts at treating some of these patients with thyroid extract have met with promising success.

7. *Acro-asphyxia.*—The so-called dead finger which is alternately warm and cold, red and pale is frequently an early symptom of symmeteric (Raynaud's) gangrene.

8. *Central nervous system lesions.*—This includes a group of nervous disturbances which manifest themselves by early symptoms localized in an extremity, e.g., syringomyelia, spinal gliosis, progressive muscular atrophy (chronic poliomyelitis), amytrophic lateral sclerosis and even tabes dorsalis. These can be differentiated by careful neurological examination. However, it is quite interesting to know that tabes dorsalis can mislead the diagnostician for quite some time. It is advisable, therefore, if the complaint of the patient is one of pain in the extremities which is knife-like in character, to consider "tabetic crisis" and to search for other luetic manifestations.

Of all the various diseases which might be confused with thrombo-angiitis obliterans, there is only one that could not be differentiated and that is arteriosclerosis of the Mönckeberg type. MacCallum (5), however, believes this most frequently responsible for and associated with gangrene of the senile and the diabetic.

The prognosis of thrombo-angiitis obliterans is naturally directly proportional to the amount and extent of pathological involvement. Until quite recently there was no definite method of prognosticating this condition. This difficulty becomes obvious when one considers the frequency with which pulseless extremities have escaped amputation for years because of the establishment of collateral circulation. Hence, for the most part, prognosis depends upon one's ability to determine the extent of involvement.

Among the clinical methods for determining the latter might be mentioned:

1. The determination of the length of time for reestablishment of color after the leg had been raised and allowed to become ischemic.
2. The noting of the level at which the extremity feels the coldest.
3. The Moszkowicz method where an Esmarch bandage is applied to the limbs and then removed, noting the time for color to return; anything beyond a few seconds being considered abnormal.

Recently the Pachon oscillometer has been used to prognosticate this condition. It measures the expansion of the limb due to pulsation and is calibrated accordingly. Those who have used this method speak well of it.

The treatment of this condition has been adequately described in the paper by Aycock and Gundry (6) to which the reader is referred for details. It need only be mentioned that medically some cases have responded excellently by the intravenous use of typhoid vaccine. The fever following such injection is believed to do much towards the establishment of collateral circulation.

In conclusion it must be recalled that the early recognition of thrombo-angiitis obliterans is very important. By getting an early start in the conservative treatment of this condition one may at times spare the patient the horrors of amputation.

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THE MAN: ARTHUR H. HAWKINS, M.D.[1]

By GEORGE O. SHARRETT, M.D.

CUMBERLAND, MD.

From two points of view, alone, have we a wide and satisfactory view of life; one, when, amid the glorious tints of early morn, ere the dew of youth has vanished, we stand at the foot of the hill, eager for the journey; the other, wider perhaps but less satisfactory, as we gaze from the summit, at the lengthening shadows cast by the setting sun. From no point in the ascent, have we the same broad outlook, for the steep and broken pathway affords few halting places with an unobscured view. You remember in the ascent of the Mountain of Purgatory, Dante, after a difficult climb, reached a high terrace encircling the hill, and sitting down turned to the East remarking to his conductor—"all men are delighted to look back."

Tonight, I look back over an acquaintance with our honored guest covering a period of twenty-five years, and I am thrilled with the memories of those years.

A few years ago, in this same room, I was selected to address the District meeting of the American College of Surgeons and to welcome to Cumberland and Allegany County one of the Nation's most popular and outstanding personages in the field of surgical endeavor. I said on that occasion that this would be an outstanding night in my life and a bright spot in my career which I could not and would not forget.

Tonight, I am called upon to address the members of the Medical and Chirurgical Faculty of the State of Maryland on another such occasion. This time, I feel especially honored and I am particularly grateful for the confidence placed in me by my local Society in being called upon to deliver this address. This night and this meeting shall ever stand forth in my memory as the greatest in my career, for I have the opportunity not of welcoming a stranger from afar to our city—nor of welcoming home a hero who had achieved some glorious victory, but I stand before you to give vent to my feelings concerning the man we honor tonight—emptying my inmost soul after twenty-five years of contact with him—that you and all the World might know that in Cumberland and Allegany County, we have a man who means more to us than all the Mayos, Criles, Halsteds, etc., because he has all the professional qualities of these great men; and, besides them, he is our friend.

Arthur Hanson Hawkins was born in Charles County, Maryland, December 27th, 1868. After the traditional preparatory schooling, he entered the University of Maryland, from which he graduated in 1895. He spent two years at Bay View and Spring Grove about which my friend Doctor Lee Cohen has told you. In 1897, he came to Mount Savage where he practiced until 1901. In 1900, he took a post-graduate course in surgery. In 1909, he sought professional advancement by attending the Mayo Clinic. In 1912, he journeyed to Europe. Since that time, he has attended the various National Society meetings, always improving himself professionally and keeping posted on all new developments. He has been President of the local Society, and, in 1922, was made President of the Medical and Chirurgical Faculty of Maryland.

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[1] Address delivered at testimonial dinner September 28, 1933, at the Fort Cumberland Hotel, Cumberland, Md.

I shall never forget the first time I met our honored guest. I had just arrived in Cumberland and registered at the best Hotel, The Windsor, and then I started out to find Cumberland's leading surgeon, Doctor Hawkins. I had been informed that Doctor Hawkins was the leading surgeon by the man who advised me to come to Cumberland—the late Dr. D. Z. Dunott. I walked down to Doctor Hawkins' home and introduced myself, and I was welcomed as only this man can welcome a stranger—like a long lost brother. I was welcomed with kindness and consideration, and was willingly given time to explain my mission. I shall never forget my first impression. I was satisfied that if I would follow such a man and emulate his characteristics, I would be sure to succeed. Here I had found a man who was kind, considerate, genteel, neat, possessing a countenance beaming with friendliness. Since that day, I have followed this man. He and I have been so friendly that we have fought each other; but through it all there has been molded a friendship which has lasted throughout these twenty-five years, a friendship which I am proud to possess.

Will I ever forget the happy hours spent with him in the field and in the woods, tramping along side by side for hours following the dogs in the quest for quail? How often we would sit down to rest and talk about the various medical and surgical problems which we both had to face! How we reminisced about other trips! How we joked with one another! How we were boys once again together! He has ever been a true sportsman. He has always enjoyed the hunt, and particularly the trips to the Arkansas wilderness in quest for ducks, where together we sought relaxation from the cares of our professional life.

Well do I remember the first trip with the Duck Busters when we initiated this highly polished gentleman hunter to the art of tending fire—the science of dish-washing and cooking in a shack on Piney Island in Tangier Sound. How the *Gang* did ride him! How he did take it!

Shall I ever forget the confidential chat we had together in the hotel at Salisbury after the trip was over? There he opened up his heart to me. Ever since I have felt closer to this great man. His advice to me, his junior, has never been forgotten. Nor should it be. I knew, then, that he was a friend worth while. I knew he was my friend.

As a philanthropist in his community life, he stands at the top of the list. He has always been one of the first called upon to aid in all forward movements in the community. He has not only responded by lending his own personality and influence, but has always contributed in a financial way in the most liberal manner. No civic movement could have greater impetus, none could have a finer stimulus for enthusiasm, nor a more assuring reason for success than to have the name of Hawkins placed at the head as a leader or the leader. I was told by one of his most intimate associates that he believes that Hawkins has given this community a million dollars.

And best of all, he has not boasted about it. He has not advertised it, but has carried on in his quiet way, regardless of consequences, and has gained personal pleasure and comfort out of the fact that he has done some little thing towards making others happy.

As a surgeon in the community, he has no peer. He is the pioneer of modern surgery in Western Maryland; and, come what may, no man can ever fill the place this man has occupied in the profession in this part of the State. He is the first real modern surgeon in Cumberland. I say this with no fear of contradiction. There has never been another man in the surgical field in this community who has taken such interest in the younger doctors, assisted them in every way by kindness, friendship and fatherly advice, and given to the community, from his associates, three or four well-qualified surgeons to fill his place when he has completed his work. He has made it his duty to see that his associates have been well provided with patients; and have been given opportunities for experience by personally supervising their work. They have all been well compensated by the knowledge they have received from his teachings as well as by financial returns. This quality of unselfishness, so characteristic of him, I claim to be the highest quality which any man can develop. He has been the Moses to the medical profession of this County. He has ever stood for proper ethics and abhors unkind and unjust actions on the part of his professional brethern. As I have said before, he has been President of the State Faculty; and, if we, his friends, had it in our power, we would make him the president of the highest medical tribunal in the world.

At no time in his career, has the profession or the laymen of this community given any public recognition to this great man. We, his professional colleagues, feel that it is our own duty to publicly recognize this outstanding character. We feel that today the lay public could award him a crown of honor which he rightfully deserves—this being the appointment of Chief Surgeon of our Municipal Hospital—the Memorial Hospital—which he has faithfully served and to whom its success is due, in no small measure.

We also feel it incumbent upon us to let him know that we, personally, feel grateful to him for his kindness, friendliness and willingness to aid each and everyone of us in our daily tasks.

He has exerted a charm not only upon the members of his profession, but upon the populus as well. Many men, women and children of this City and County look upon this man as the individual who has preserved their life. He is always ready, fearless, sure, safe, thoughtful and kind under the most trying circumstances, and willing at all times to give his best to rich and poor alike. Is it any wonder that people hail him as a great man! Listen to this tribute written by a highly intelligent and devout woman to our honored guest:

The Master was spent with labor,
His disciples had bade Him rest,
Around Him a surging crowd,
Health of mind and of soul, their quest.

As shadows of daylight lengthen,
They bring Him the lame and the ill,
Lo! a cure, a touch of His Hand,
And an act of His holy Will.

Then came a day when He left us
To go back to His Father's Home,
What now of the ill and the suffering?
Would He leave them without help, alone?

Not He, for He loves us truly,
And would suffer us ne'er to repine.
He would give skill to the hands of men
He'd trust them with His power divine.

They would care for His ill ones,
The afflicted, the sick and the poor.
They would turn an ear to their pleading
Who knocked for help at their door.

And when life for them shall be ended,
And they come to the close of day
The Master will whisper, "My steward,
Come now to my mansions to stay."

For to you I gave my afflicted,
And for them good work you have done.
Whatso'er to these afflicted,
You have done unto me, my son.

And to you, dear Doctor Hawkins,
When your course of life is run
May the Master whisper sweetly,
"My steward, your work is well done."

And from now till that day's dawning,
I shall whisper a prayer each day,
That this welcome of the Master
Be yours at the close of the way.

Need I say more to you about our honored guest? To you, Arthur Hanson Hawkins, our friend, we, having felt that you should have a material reminder of this occasion which would in a very humble manner represent the high esteem in which you are held by your professional confreres, wish to present this gift, not so much because of the intrinsic worth or value thereof, but because it represents our gratitude for your inestimable value to us as co-workers in the great field and as a mark of the love we have for you. The inscription on the tray is, to my mind, a worthy tribute to a great man—"Facto Optimo—he does his best."

At the same time, may we offer our best wishes for the years to come, years of health and happiness. May you live long to continue the excellent work you have been doing, to extend indefinitely your service to humanity; and may we, members and guests present, live long to bask in the sunshine of your smile. Judging from his mental powers and his ambition, our honored guest is not 64. As I look at him and recall some of his achievements, I am disposed to twist Doctor Oliver Wendell Holmes' lines to the singular number, and then quote them thus: "Hang the Almanac's Cheat and the Catalogue's Spite! Old Time is a liar! The man's twenty tonight."

While his work bears all the marks of careful thought based upon experience, he has the spirit of youth, for his ambition is boundless, and his beliefs of the most optimistic sort. May he stay so long among us that we shall cease to think of his years—and shall simply say

Everybody! Stand up! It is his night!
Drink to his health and happiness!

ARTHUR H. HAWKINS, M.D.[1]

By J. ALBERT CHATARD, M.D.

BALTIMORE, MD.

It is always with the greatest pleasure that the Faculty looks forward to these semi-annual meetings, especially as they bring us into much more intimate contact than the annual meetings, socially and otherwise. The time of the year is usually at its best and the chance for viewing Maryland scenery and enjoying a day or so of companionship stands out as a great inducement; as the social side and not the scientific side has always been accentuated.

Just why more members do not avail themselves of this treat is a thing I cannot understand. Maryland, as usual, is in a unique position, being the only State that has such a semi-annual meeting arranged in just this way. Since 1908 there have been few meetings I have missed, and these have led me to all parts of the State and in this way I have made many lasting friendships with the county members. This privilege is open to each and every one of us if we only avail ourselves of the chance. Each county society has something different to offer us either in scenery, association or good fellowship, so that in looking back over the many wonderful meetings we have had, it is impossible to make comparisons. All of us are made to feel at home everywhere, so I will not mention any of our component societies except to call attention to the present cordial invitation extended to the Faculty membership by the Alleghany-Garrett County Medical Society. We have been here before several times and on each occasion have been made to feel at home and in every way have had a most delightful time. With this spirit and feeling of great pleasure the Faculty wishes to extend through me its appreciation of the care taken of us and the wonderful hospitality of the Alleghany-Garrett County Medical Society. In the name of the Faculty I thank you.

Now to digress for a few minutes. Some twenty years ago I was present at one of the meetings of the Faculty as a junior member. I happened to be included in a small group that was then shown marked attention and given a delightful time by several members, but especially by one that I picked out as the sponsor and moving spirit of the group. Again several times in Baltimore and elsewhere it has been my good fortune to be in the company of this same member, and I grew to know him better and appreciate his work. These all too infrequent meetings kept on and then

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[1] Address made at testimonial dinner, September 28, 1933, at the Fort Cumberland Hotel, Cumberland, Md.

I recall him as being recognized by the Faculty and being made one of the Vice-Presidents, in 1917 and 1921; finally in 1922 he was made one of our Presidents, which delighted us all very much. His interest in the Faculty affairs increased so that his name is found constantly on committees and other integral parts of the Faculty, in all of which positions he served with distinction and was of great help to each and every one of us. Only recently on one of my pleasant trips to Cumberland I no sooner got out of the train than through the pouring rain I saw his smiling contenance, just as through many years I have seen him off and on, always with greatest pleasure. But tonight the secret is out. I have the pleasure of disclosing his name to you, Arthur H. Hawkins.

Arthur H. Hawkins, M.D.

BULLETIN

OF THE

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HUGH WARREN BRENT, M.D.

BORN APRIL 21, 1881: DIED AUGUST 19, 1933

With the passing of Hugh Brent there went out of the lives of many an attractive friend and a skillful physician.

Hugh Warren Brent was born in Baltimore, on April 21, 1881, the son of Hugh Brent and Sarah Jane Bull (Brent), both of families old and well known in Virginia and Maryland. He was educated in the public schools of Baltimore, and received the degree of Doctor of Medicine from the Medical School of the University of Maryland in 1903. After graduation he acted as interne in gynecology at the University Hospital, and it is quite possible that this work, associated as it was with the late Drs. Ashby and Hundley, determined his selection of gynecology and obstetrics as a specialty. In 1905 he spent six months in Europe, chiefly in attendance upon the gynecological clinics in Berlin, Paris and Copenhagen. After returning to Baltimore he entered practice, but did not stay long as he accepted the position of surgeon on the Madeira-Mamore Railroad development in Brazil. This period was spent in that part of Brazil made so familiar in Tomlinson's "The Sea and the Jungle."

After one year, he came back to Baltimore, opened an office, and limited his practice to gynecology and obstetrics. He rapidly acquired an extensive practice, and in fact, during the last ten years, probably had the largest private obstetrical practice in Baltimore, and in addition, did a considerable amount of operative gynecology.

His position and influence in the medical profession of Baltimore and its vicinity was unique. He had always maintained a teaching position at the University of Maryland, having been made Associate Professor of Gynecology in 1912, and was Professor of Clinical Gynecology at the time of his death. The sheer mass of his work prevented any active participation in medical societies. Yet, by example, he exerted a wide and most wholesome influence over a succession of internes and younger colleagues at the University, Woman's and St. Joseph's Hospitals in Baltimore, and at the Emergency Hospital at Annapolis. This was due primarily to an innate skill as an operator, guided as it was by sound judgment and rich experience. It was rendered more emphatic by his high ethical conduct, with an invariable courtesy and consideration for others. By his older colleagues and contemporaries, he was genuinely respected as a skillful surgeon, but greatly beloved by reason of his personality, his unfailing good humor, and in his prime his ability always to cap a good story with a better one. It is no exaggeration to state that he was literally revered and loved by a multitude of women, because in the delivery room and at the bedside his peculiar combination of surgical skill, attentiveness to details, with patience and kindness, brought confidence and comfort to them in their time of need.

During the war, he was commissioned as Captain, and went over-seas with Base Hospital No. 42, the unit organized by the University of Maryland, serving as a team head with that outfit, at Bazoilles in the Meuse Valley, in the Vosges Sector. He was discharged June 19, 1919.

He was married on December 16, 1914 to Helene Vogeler, who survives him, together with three children, Hugh III, Laura and Raleigh Brent.

On account of the peculiar circumstances of Dr. Brent's long illness it seems desirable to refer to it in some detail. Upon a constitution with a family tendency to vascular disease, there was imposed fifteen years of arduous work, with irregular habits of sleeping and eating. He always had boasted of his health and of his freedom from fatigue, but finally he reached a point when he could no longer carry on. A brief trip to Europe in December, 1932, served the purpose of temporarily interrupting his work, but in March he was compelled by his medical advisors to completely retire from practice. It was found that he had an advanced arterio-sclerosis, with hypertension, especially involving the cerebral and renal vessels. In addition, there was a local infiltrative growth in an old operative scar behind the left ear. This had caused a neuritis of the seventh nerve, with facial paralysis, and was accompanied by considerable pain. This condition was essentially local, there was no involvement of the bones of the skull, nor was there any intracranial lesion. It had no relationship to his arteriosclerotic state, but added greatly to his discomfort. After being released from the responsibilities of practice, he lived at his country home, Weymouth Farm in Baltimore County, and for a time there was some symptomatic improvement. The inexorable progression of his vascular condition, with increasing general weakness, disturbance of equilibrium, and difficulty of emotional control, made him most uncomfortable. Then, too, his sight failed, it became impossible for him to see with clearness and exactness.

Hugh Warren Brent, M.D.

This caused him great anxiety as it so limited his time consuming activities. His mind, however, remained unimpaired, he welcomed his friends and his old courtesy and considerateness struggled through his feebleness. On August 19th, he died suddenly as a result of a self-inflicted wound. There seems no doubt that he adopted this course courageously and with clear mentality, to spare his family and his friends the further pain of his helpless and hopeless condition. Those who knew him best acquiesce in his decision, honor his memory, and will forever cherish in their hearts, his friendship.

G. C. L.

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The names listed above are officers for the term beginning July 1, 1933, and ending June 30, 1934.

ITEMS

The following alumni are members of the Allegany-Garrett County Medical Society:

Grover Cleveland Blake, M.D., Cumberland, Md., P. & S., class of 1910.
Howard Johnson Bostetter, M.D., Mt. Savage, Md., class of 1907.
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Earl Edgar Broadrup, M.D., Cumberland, Md., class of 1921.
James Carpinter Cobey, M.D., Frostburg, Md., P. & S., class of 1896.
Timothy L. Conroy, M.D., Frostburg, Md., P. & S., class of 1892.
Linne H. Corson, M.D., Cumberland, Md., P. & S., class of 1915.
Frank Garnett Cowherd, M.D., Cumberland, Md., class of 1908.
Clay Durrett, M.D., Cumberland, Md., class of 1930.
Harold William Eliason, M.D., Cumberland, Md., class of 1927.
Samuel E. Enfield, M.D., Cumberland, Md., P. & S., class of 1913.
A. Leo Franklin, M.D., Cumberland, Md., class of 1902.
Joseph Powel Franklin, M.D., Cumberland, Md., class of 1921.
William Anderson Gracie, M.D., Cumberland, Md., class of 1910.
Bruce Hetrick Guistwhite, Cumberland, Md., class of 1914.
Arthur Hanson Hawkins, M.D., Cumberland, Md., P. & S., class of 1895.
Henry W. Hodgson, M.D., Cumberland, Md., Washington University School of Medicine, class of 1871.

Samuel M. Jacobson, M.D., Cumberland, Md., class of 1931.
James T. Johnson, M.D., Cumberland, Md., B.M.C., class of 1892.
W. B. Johnson, M.D., Cumberland, Md., class of 1928.
Arthur Ford Jones, M.D., Cumberland, Md., class of 1931.
Thomas W. Koon, M.D., Cumberland, Md., P. & S., class of 1893.
Lloyd Jackson Lanich, M.D., Cumberland, Md., class of 1915.
Lloyd Rogers Meyers, M.D., Cumberland, Md., class of 1915.
Henry Wheeler McComas, M.D., Oakland, Md., class of 1888.
William Oliver McLane, Jr., M.D., Frostburg, Md., class of 1924.
Francis P. O'Neil, M.D., Cumberland, Md., P. & S., class of 1902.
Charles Llewellyn Owens, M.D., Cumberland, Md., class of 1904.
Maurice E. Broadas Owens, M.D., Cumberland, Md., class of 1910.
Knight Reynolds, M.D., Cumberland, Md., class of 1925.
Howard Thomas Robinson, M.D., Cumberland, Md., class of 1904.
George Oliver Sharrett, M.D., Cumberland, Md., B.M.C., class of 1908.
Charles Frederick W. Snyder, M.D., Cumberland, Md., B.M.C., class of 1912.
Howard Lee Tolson, M.D., Cumberland, Md., class of 1920.
Richard White Trevaskis, M.D., Cumberland, Md., B.M.C., class of 1911.
Edward H. White, M.D., Cumberland, M.D., B.M.C., class of 1899.
William Frederick Williams, M.D., Cumberland, Md., class of 1916.
Frank Minium Wilson, M.D., Cumberland, Md., class of 1914.
Charles Conrad Zimmermann, M.D., Cumberland, Md., class of 1925.

Dr. Frank M. Wilson, Cumberland, Md., class of 1914, had an open house on September 28, 1933, for those attending the semi-annual meeting of the Medical and Chirurgical Faculty of the State of Maryland.

The following alumni read papers at the semi-annual meeting of the Medical and Chirurgical Faculty of the State of Maryland held at the Fort Cumberland Hotel, Cumberland, September 28 and 29, 1933:

Dr. William F. Williams, Cumberland, Md., class of 1916, Agranulocytosis.
Dr. Arthur H. Hawkins, Cumberland, Md., P. & S., class of 1895, The Ideal Cholecystectomy.
Dr. Samuel M. Jacobson, Cumberland, Md., class of 1931, New Form of Treatment for Acute Gonorrheal Urethritis in the Male.
Dr. Norman I. Broadwater, Oakland, Md., class of 1909, Acute Infectious Neuroneuronitis.

Dr. Lloyd Jackson Lanich, Cumberland, Md., class of 1915, is vice-president of the Allegany-Garrett County Medical Society.

Dr. Joseph P. Franklin, Cumberland, Md., class of 1921, is secretary of the Allegany-Garrett County Medical Society.

Dr. Howard L. Tolson, Cumberland, Md., class of 1920, is treasurer of the Allegany-Garrett County Medical Society.

The following alumni were members of the committee on arrangements of the semi-annual meeting of the Medical and Chirurgical Faculty of the State of Maryland held at Cumberland, Md., September 28 and 29, 1933:

Dr. George O. Sharrett, Cumberland, Md., B.M.C., class of 1908, chairman.
Dr. William Oliver McLane, Jr., Frostburg, Md., class of 1924.
Dr. William F. Williams, Cumberland, Md., class of 1916.
Dr. Joseph P. Franklin, Cumberland, Md., class of 1921.
Dr. Frank M. Wilson, Cumberland, Md., class of 1914.

The Allegany-Garrett County Medical Society were hosts to the visitors at a banquet given, September 28, 1933, in connection with the semi-annual meeting of the Medical and Chirurgical faculty of the State of Maryland. Dr. Arthur H. Hawkins, Cumberland, Md., P. & S., class of 1895, was the guest of honor. Dr. Hawkins was born December 27, 1868; was resident surgeon, Bay View and Spring Grove Hospitals, 1896–1897; practised at Mt. Savage, Md., 1897–1901; located at Cumberland since; was president of the Medical and Chirurgical Faculty of the State of Maryland, 1922. He is widely and favorably known by the profession and beloved by the citizens of Cumberland and the surrounding country. Dr. Joseph P. Franklin, Cumberland, class of 1921, was the toastmaster. The program was as follows:

Welcome: Hon. George Henderson, Mayor of Cumberland.
Welcome: A. R. Walker, M.D. President—Allegany-Garrett County Medical Society.
Response: J. A. Chatard, M.D., President,—Medical and Chirurgical Faculty of the State of Maryland.
Bay View Days: Lee Cohen, M.D., Baltimore, Md., class of 1895.
In the County: Henry W. McComas, M.D., Oakland, Md., class of 1888.
The Man: George O. Sharrett, M.D., Cumberland, B.M.C., class of 1908; President elect of the Medical and Chirurgical Faculty of the State of Maryland.

Dr. Jacob H. Conn, Baltimore, Md., class of 1929, has opened offices at 1719 Eutaw Place, Baltimore. He will specialize in neuropsychiatry.

Dr. Clyde F. Karns, Baltimore, class of 1927 and Dr. Lewis P. Gundry, Baltimore, class of 1928, have moved their offices to 4 E. Preston St. Their practices are limited to general surgery and internal medicine respectively.

Dr. H. V. Staton, class of 1927, is located at Hendersonville, N. C.

Dr. G. Milton Linthicum, Baltimore, Md., P. & S., class of 1893, and professor of proctology in the University of Maryland, read a paper on April 26, 1933, before the Medical and Chirurgical Faculty of the state of Maryland, entitled Conservatism and Radicalism in Medicine, and Dr. Robert P. Bay, Baltimore, Md., class of 1905, professor of oral surgery, University of Maryland, one entitled The Medical Profession in the Cost of Medical Care.

Dr. Joseph P. Franklin, Cumberland, Md., class of 1921, and Mrs. Franklin are receiving congratulations on being the parents of twins, a boy and a girl, born about four weeks ago.

Dr. Frederick De Sales Chappelear, Hughesville, Md., class of 1905, has returned to his home after a vacation spent at the Century of Progress Fair at Chicago.

Dr. J. G. Fowble Smith, class of 1908, is located at Brunswick, Md.

Dr. Frank Oldham Miller, Ellicott City, Md., class of 1902, has left for Chicago where he will visit the Century of Progress Fair.

Dr. William H. Smith, Baltimore, Md., class of 1900, has resumed his practice after a vacation spent at Ocean City, Md.

Dr. J. Mason Hundley, Jr., Baltimore, Md., a member of the gynecological staff, University of Maryland, has returned from a vacation spent in Europe.

WEDDING

Miss Theodosia Mae Seiss, R. N., Baltimore, Md., University of Maryland Training School for Nurses, class of 1927, was married on September 4, 1933, to Mr. John Daird Kaas, of Rocky Ridge, Md.

DEATHS

Dr. Harvey C. Powell, Morgantown, W. Va.; B. M. C., class of 1902; served during the World War; past president of the Monongalia County Medical Society; aged 52; died, June 30, 1933, of hepatic carcinoma.

Dr. Daniel Thomas O'Keefe, Boston, Mass.; P. & S., class of 1892; aged 66; died, June 22, 1933, of bronchopneumonia and cirrhosis of the liver.

Dr. Sol Spainhour Flynt, Rural Hall, N. C.; P. & S., class of 1889; bank president; member of the school board; aged 72; died, June 15, 1933, of chronic myocarditis.

Dr. Burton Peter Thom, New York, N. Y.; B. M. C., class of 1897; consulting physician to hospitals of the department of corrections in New York; author of Syphilis, Hygeia, or Disease and Evolution, Dust to Life; aged 58; died, May 3, 1933.

Dr. James L. Egerton, Hendersonville, N. C.; class of 1877; aged 76; died, July 10, 1933, of cerebral hemorrhage. Dr. Egerton, born, November 30, 1856, in Rutherford County, N. C., was the son of Dr. Thomas R. and Sarah Logan Egerton. He located in Hendersonville in 1877, where he was actively engaged in the practice of his profession for over one-half a century. Not only had Dr. Egerton's remarkable career as a successful physician endeared him far and wide but his human qualities as a man among men, his kindliness, his conscientiousness, his sound common sense, were outstanding characteristics. He was a splendid type of the family physician of the old school, gentleman, friend and counsellor, always more ready to serve than to profit. Members of the Alumni Association will remember seeing him at reunions and conventions for the last 30 or 40 years. He was well known in Baltimore as well as in his home state.

Dr. J. Rowe Bemisderfer, Steger, Ill.; P. & S., class of 1882; aged 76; died, July 27, 1933, of coronary thrombosis.

Dr. William Frederick Law, Syracuse, N. Y.; P. & S., class of 1896; aged 62; died, August 22, 1933, of chronic myocarditis and nephritis.

Dr. Samuel Newbern Harrell, Tarboro, N. C.; class of 1897; fellow of the American College of Surgeons; aged 58; was drowned August 6, 1933.

Dr. Joseph Connor Joyce, Annapolis, Md., class of 1908; health officer of Annapolis for 15 years; aged 44; died, September 22, 1933, of septic laryngitis. He was a son of the late Cyrus N. Joyce of Joyces'-On-Severn. His cultural education was obtained in the public schools of Annapolis and at St. John's College. Dr. Joyce is survived by his widow, Mrs. Kate McShane Joyce and a daughter, Miss Katherine Joyce. Dr. James Burch Joyce, Baltimore, Md., class of 1894, is a brother.

Dr. Waightman Thomas Willey, Baltimore, Md.; B. M. C., class of 1907, also a graduate of the Atlantic Medical College of Baltimore (1898); aged 57; died, July 29, 1933, of gastric carcinoma. Dr. Willey was born at Morgantown, W. Va. and was a son of the late W. T. and Leide Allen Willey. He is survived by his widow, Elsie Powell Willey and two daughters, Mrs. S. Proctor Brady, Jr. and Miss Mary Wain Willey.

Mr. Samuel M. Shoemaker, Eccleston, Md.; chairman of the Board of Regents, University of Maryland; member of the State Board of Agriculture; a former president of the Maryland Agriculture College before its merger with the University of Maryland; head of the Baltimore County Board of Education; aged 72; died, October 1, 1933.

Dr. Charles F. J. Coughlin, Baltimore, Md.; P. & S., class of 1912; aged 47; died, July 27, 1933, following an operation for appendicitis.

Dr. Freeman Shipton Hoover, Brownsville, Pa.; B. M. C., class of 1903; aged 65; died, July 14, 1933, of septicemia.

Dr. Samuel A. Shauwecker, Dover, Ohio; P. & S., class of 1893; formerly bank president; aged 70; died, July 12, 1933, of hepatic carcinoma and uremia.

Dr. Samuel W. Seldner, Baltimore, Md.; class of 1872; aged 82; died, September 6, 1933.

Dr. Augustus V. Wendel, Newark, N. J.; P. & S., class of 1888; aged 64; died, July 5, 1933, of pneumonia.

Dr. Frederick Schavoir; St. Petersburg, Fla.; P. & S., class of 1887; aged 73; died, July 9, 1933, of diabetic gangrene and hypertension.

Dr. William Latane Lewis, Kensington, Md.; class of 1892; aged 73; died, July 12, 1933, of acute cardiac dilatation.

Dr. Edwin Myron Weil, New York, N. Y.; P. & S., class of 1902; aged 62; died, July 12, 1933, of poison self-administered.

Dr. Edgar R. Browning, Flint Hill, Va.; class of 1895; aged 62; died, July 8, 1933, of cardiac disease.

Dr. Hugh Warren Brent, Baltimore, Md.; class of 1903; formerly professor of clinical gynecology, University of Maryland, School of Medicine; served during the World War; aged 52; died, August 18, 1933, of a bullet wound in the head. Dr. Brent, a son of Hugh Brent and his wife, Jane Bull, was born April 21, 1881. He graduated from the Baltimore Polytechnic Institute in 1899. After graduating in Medicine, he served for two years as an interne in the University of Maryland Hospital followed by post-graduate work at Paris, Hamburg, Berlin, and Copenhagen. He also spent a year in Brazil as a surgeon to the Madeira-Marmora Railroad. He was a captain in the Medical Corps of the United States Army during the World War serving in the maxillary division at Bazoilles, France. Dr. Brent married Miss Helene Vogeler, December 2, 1914, by whom he is survived together with three children, Hugh, Laura and Raleigh Brent.

Dr. A. E. Smith, Walkersville, W. Va.; P. & S., class of 1909; aged 60; died, July 31, 1933.

Dr. Sandy A. Moir, Francisco, N. C.; P. & S., class of 1886; aged 70; died, May 29, 1933, of pellagra.

Dr. Coyle J. Tracy, Pasadena, Calif.; B. M. C., class of 1897; aged 65; died, June 17, 1933, of duodenal hemorrhage.

Dr. Matthew C. Freilinger, Baltimore, Md.; class of 1906; aged 59; died, July 5, 1933, of carcinoma of the right lung.

Dr. Thomas Murphy Jordan, Raleigh, N. C.; P. & S., class of 1881; aged 76; died, June 29, 1933, of cardiac disease.

Dr. Chalmers Melancthon Van Poole, Salisbury, N. C.; P. & S., class of 1880; past president of the Medical Society of the state of North Carolina; past president of the Rowan County Medical Society; served during the World War; aged 78; died, July 28, 1933, of undulant fever. Dr. Van Poole, born in Salisbury on Sept. 2, 1854, was the son of Otho and Lucretia Katherine (Lentz) Van Poole. He received his A.M. degree at the old North Carolina college in 1878 and his M.D. from the College of Physicians and Surgeons in Baltimore in 1880. Last year he attended a reunion of his class, presiding at the meeting and being the only living member from North Carolina. He began his practice in the county in 1880, being located at Craven in Providence township and in the summer of 1913 moved to Salisbury to practice. In 1885 he married Mary Eliza Linn (daughter of the late Robert J. Linn) who survives him. During his life he was highly honored by the medical fraternity, being treasurer of the N. C. Medical society from 1888 to 1893 and serving as president during 1910–11. He was also twice president of the Rowan County Medical Society. During his lifetime he also found time to contribute articles of historical and biographical value, both locally and in the State. Just a few months ago he wrote an article for The Post which had to do with the Civil War and the march of Sherman. He was a captain in the Medical Reserve Corps in 1917 and spent some time in Greenville, S. C., in preparation for the work which the local medical district performed. In addition to his widow, nine children survive: Thomas B., Robert L., Otho, Ruth and Rena Van Poole, all at home; Dr. Carl M. Van Poole, of Mt. Airy, Md., class of 1916; Mrs. Oscar Phillips, of Albemarle, Mrs. W. E. Beaver, of Salisbury, and Glenn Van Poole, of Honolulu. Two brothers, I. A. Van Poole of the county and Dr. Gideon M. Van Poole of Honolulu, class of 1899, also survive. The following notice concerning Dr. Van Poole was clipped from a local paper:

A PHYSICIAN AND CITIZEN

> The county lost a good, a loyal and a most useful citizen in the passing of Dr. Chalmers M. Van Poole, of this city, Friday morning. He was in his 79th year, and died after a short illness that ended a life of intense activity as physician and all around good citizen and churchman.
>
> The life of Dr. Van Poole reminds us that a man may crowd a great deal into the short span allotted to him; that he may pile good deed upon good deed until he has accumulated a great storehouse of things that are truly worth while and most creditable to one life. He was not only a faithful practitioner of an honored profession, and made that profession a great platform for useful living, but he entered into many other activities and gave tone and character to these and left the record of a most helpful service everywhere.
>
> Dr. Van Poole was a very active churchman, he was more than that, a Christian who sought to follow and to serve his Master humbly and helpfully. He was active in organizations that gave constructive progress to worth while things. He was a leader in benevolences, and all community activities that went to the betterment of his associates, the county and State.

Raymond A. Pearson
President of the University of Maryland

BULLETIN
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THE INNERVATION OF THE THYROID GLAND [1,2]

By HARRY A. TEITELBAUM, B.S.

BALTIMORE, MD.

Because of the relative infancy of the study of endocrine innervation most of the facts accumulated on this subject are still in a controversial state. A small portion of our knowledge with respect to the innervation of the endocrine glands has been established, however, on a rather firm basis; and certain aspects of thyroid innervation can be included within the scope of this so-called "small portion."

Though a tremendous amount of work has been done on the physiology of the thyroid nerve supply, there is really no categorical evidence for the existence of true secretory fibers. The physiology of the vaso-motor nerves of the thyroid gland, however, has been studied by many investigators with a great deal of success. From an anatomical point of view it can be claimed that the gross pattern of the thyroid nerves has been worked out in great detail despite its intricate ramifications. The histological distribution of the thyroid nerves is not so definite, however; for it is still being debated whether nerves end in relation to the follicular epithelium, or not.

As we proceed to disentangle the labyrinthian network of nerves which contributes fibers to the thyroid it shall become evident that there exist several very definite pathways along which nerve fibers may pass to this gland. In addition to these more definite tracts there are a number of aberrant pathways which may also serve for the distribution of thyroid fibers. Following the gross-anatomy, the histological details of the thyroid

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[1] Laboratory of Gross Anatomy, School of Medicine, University of Maryland.

[2] This work was begun with the aid of the Julius Friedenwald Fund for Medical Research and completed with the aid of the Hitchcock Research Fellowship of the University of Maryland, School of Medicine.

nerve supply shall be considered; and then the rather hazy connections of the thyroid nerves in the central nervous system shall be touched upon.

The Gross Anatomy of the Thyroid Nerve Supply:—Though branches may pass to the thyroid gland from almost any of the nerves in the cervical region, the ultimate origin of all thyroid fibers seems to be in the cervical sympathetic trunks and in the vagus nerves. The latter, being parasympathetic in nature, must be differentiated from the sympathetic nerves if the generally accepted division of the autonomic nervous system is to be abided by.

The Sympathetic Thyroid Nerves:—Nerves may pass to the thyroid gland from the sympathetic ganglia, trunks, or cardiac nerves. These nerves may pass to the thyroid either directly or by first anastomosing with other nerves which lie nearby. Of the three possible origins of sympathetic thyroid nerves as arbitrarily arranged above, the ganglia have been described as being the most common.

Though our knowledge of the existence of sympathetic thyroid nerves dates back at least to the middle of the eighteenth century, as far as I could ascertain Drobnick (1887) was the first one to describe direct fibers from any of the cervical ganglia to the thyroid gland. He observed in man that when the middle cervical ganglion is present, a fine branch arises from the origin of the middle cardiac nerve and passes to the thyroid along the inferior thyroid artery. Briau (1897) verified the middle cervical ganglion as the point of origin of thyroid nerves in dogs and rabbits; but in the human fetus he found that the three cervical ganglia gave rise to thyroid nerves. According to Cyon (1897) (1898) the cervical sympathetic ganglia provide one of the sources of thyroid nerves. In the latter of these two publications, Cyon points out that in the dog the superior thyroid nerve may be composed of fibers from the superior cervical ganglion as well as from the superior laryngeal nerve. These components of the superior thyroid nerve may pass to the thyroid separately, however. The significance of Cyon's observation shall become more evident when we review the work of Nonidez, and touch upon some of the physiological aspects of the sympathetic-laryngeal anastomoses in relation to the thyroid innervation. In figure 1, I have illustrated this anastomotic condition (S.L.A.) as found in an adult cadaver. This feature of the thyroid nerve supply shall be discussed in more detail shortly.

Among the more recent investigators Brauecker (1923) observed in the human fetus that a superior thyroid nerve arises from the superior cervical ganglion; and a middle thyroid nerve from the middle cervical ganglion, but the inferior thyroid nerve has its origin in the subclavian plexus. Reinhard (1923) also excludes the inferior cervical ganglion as a source of thyroid fibers, but he does stress the middle ganglion, as does Kuntz (1929). According to the latter the superior cervical ganglion may supply fibers to the thyroid in some instances. The superior cervical ganglion is a more constant source of thyroid fibers than is maintained by Kuntz, however; for this ganglion often transmits fibers to the thyroid through anastomoses

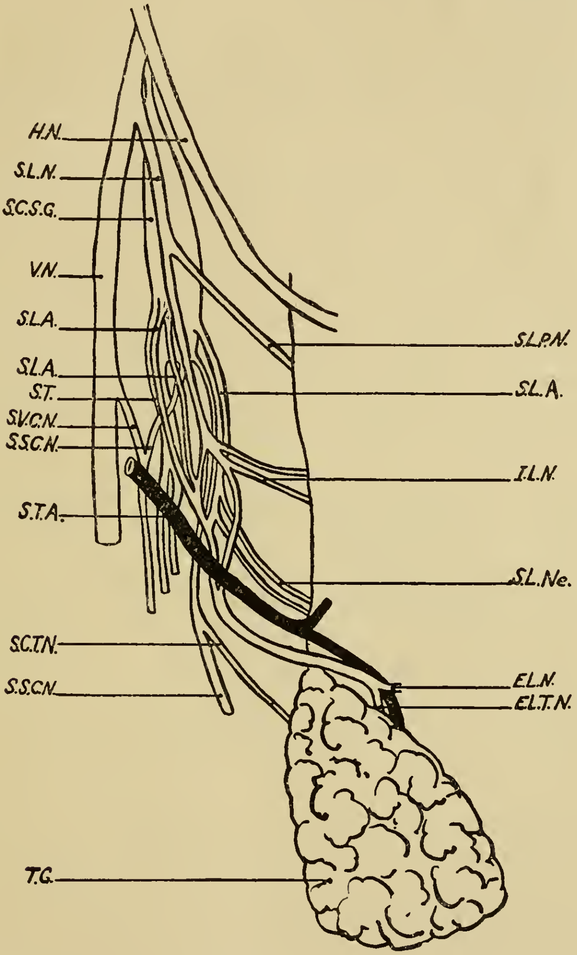

FIG. 1. THE CERVICAL AUTONOMIC NERVES OF AN ADULT CADAVER SHOWING THE SUPERIOR CERVICAL GANGLION AND VAGUS NERVE AND THEIR BRANCHES

The thyroid receives a branch from the external laryngeal nerve. *E.L.N.*, external laryngeal nerve; *E.L.T.N.*, external laryngeal thyroid nerve; *H.N.*, hypoglossal nerve; *I.L.N.*, internal laryngeal nerve; *S.C.S.G.*, superior cervical sympathetic ganglion; *S.C.T.N.*, branch of superior sympathetic cardiac nerve to thyroid; *S.L.A.*, sympathetic laryngeal anastomosis; *S.L.N.*, superior laryngeal nerve; *S.L.Ne.*, sympathetic laryngeal nerve; *S.L.P.N.*, pharyngeal branch of superior laryngeal nerve; *S.S.C.N.*, superior sympathetic cardiac nerve; *S.T.*, sympathetic trunk; *S.T.A.*, superior thyroid artery; *S.V.C.N.*, superior vagus cardiac nerve; *T.G.*, thyroid gland; *V.N.*, vagus nerve.

with the superior laryngeal nerve and its branches, as first observed by Cyon, and since verified by many others, as shall subsequently be divulged. In Nonidez' (1931b) work—which confirms Cyon's observation beyond a doubt—the superior cervical ganglion is stressed as a source of thyroid fibers in the dog.

Aberrant ganglia which give rise to thyroid nerves have been described in a number of instances. In the cat, Langley (1893) occasionally observed a small ganglion in the cervical sympathetic trunk at the level of the thyroid artery. This ganglion gave rise to one or more gray rami which followed the thyroid artery. In most animals, Langley states, this accessory ganglion forms a part of the superior cervical ganglion. Following Langley, Poirier and Charpey (1901) mention the fact that a number of pseudoganglia have been described in the course of the plexus on the thyroid artery. More recently, Brauecker (1923a, b) has described a small ganglion in the course of the cardiac nerves at a point where the latter were very intimately associated with the thyroid plexus. He also described a small ganglion in the course of the external laryngeal nerve. This ganglion had communications with the superior cervical ganglion and the thyroid plexus, among other structures.

As already mentioned, in addition to the sympathetic ganglia, the trunks and cardiac nerves may give rise to thyroid nerves. A century ago, Swan (1834) described contributions from the cervical sympathetic trunk to the plexus on the inferior thyroid artery in man. Recently Brauecker (1923a) and Flatow and Schilf (1928) have verified Swan's observation. Santenoise (1927), Kuntz (1929), and Greving (1931), who review the evidence on hand, also make mention of the thyroid fibers which arise from the sympathetic trunk.

With regard to the cardiac nerves, Drobnick (1887) described a contribution to the inferior thyroid artery from the middle cardiac nerve. In some cases the superior and middle cardiac nerves gave rise to branches which anastomosed with the superior and inferior laryngeal nerves respectively. These anastomoses contributed fibers to the thyroid gland. Later Briau (1897) observed in the human fetus that the sympathetic thyroid plexuses received contributions from the cardiac nerves. Brauecker (1923a, b) found the contributions to the thyroid plexus from the sympathetic cardiac nerves to be constant, even if variable in pattern, in many human dissections. Flatow and Schilf (1928), though they observed contributions to the thyroid from the superior and middle cardiac nerves, fail to mention the inferior cardiac nerve. Greving (1931) reviews Brauecker's findings. In figure 1 (*S.C.T.N.*), I illustrate a contribution from a superior sympathetic cardiac nerve (*S.S.C.N.*) to the dorsal aspect of the thyroid gland (*T.G.*).

The Parasympathetic Thyroid Nerves:—According to Lubcke (1902), and Brauecker (1931a, b), the vagus trunk may give rise to thyroid nerves, a condition which is evident in figure 2 (*V.Th.N.*) and in figure 3 (*V.T.G.*). Most often, however, the parasympathetic thyroid nerves do not arise directly from the trunk, but rather from the laryngeal branches of the vagus nerve. As early as 1766, Haller described a branch to the thyroid from the superior laryngeal nerve in man; while Fuhr (1866) described a contribution from the external laryngeal nerve to the thyroid in the dog. Drobnick (1887) made a similar observation in man. Following Drobnick, many investigators have confirmed the contributions from the superior laryngeal nerve to the thyroid gland, among them being Lindemann (1891), Katzenstein (1897), Briau (1897), Cyon (1897), Lubcke (1902), Brauecker (1923a, b) and Nonidez (1931). In figure 1 are illustrated thyroid fibers (*E.L.T.N.*) from the external laryngeal nerve (*E.L.N.*) to the thyroid gland (*T.G.*) in a human adult.

With relation to the origin of thyroid fibers from the superior laryngeal nerve and its branches, it is important to stress certain anastomoses between the latter and certain fibers arising from the superior cervical ganglion. Mention has already been made of Cyon's (1898) description of this condition in the dog. Recently Brauecker (1923a) has reported this anastomosis in man, and Nonidez (1931b) has verified its presence in the dog. Nonidez' work is especially noteworthy, for he has been able to follow both the sympathetic and vagus (parasympathetic) components of this anastomosis into the thyroids of puppies by means of reconstructions of serial sections of the necks of the latter. Nonidez thus demonstrated conclusively that owing to the anastomoses being described, the laryngeal nerve contains sympathetic as well as parasympathetic fibers; and that the contribution to the thyroid contains both these kinds of fibers. I have been successful in dissecting this anastomotic condition in a human adult as illustrated in figure 1.

In addition to receiving fibers from the superior laryngeal nerve, the thyroid also receives contributions from the inferior laryngeal (recurrent) nerve, a condition described in both man and animal by Swan (1834), Horsley (1866), Drobnick (1887), Lindemann (1891), Katzenstein (1897), Briau (1897) and Brauecker (1923a, b). This contribution is not as consistent as that from the superior laryngeal nerve which is evident from the fact that a number of investigators have failed to find it, among them being Fuhr (1866) and Ruddell (1893). Nonidez (1931b) concludes that the recurrent nerve contributions to the thyroid are not constant in the dog.

As in the case of the superior laryngeal nerve, the inferior laryngeal nerve also receives sympathetic anastomoses. The latter have been described by Haller (1766), Swan (1834) and Brauecker (1923b). Flatow and Schilf

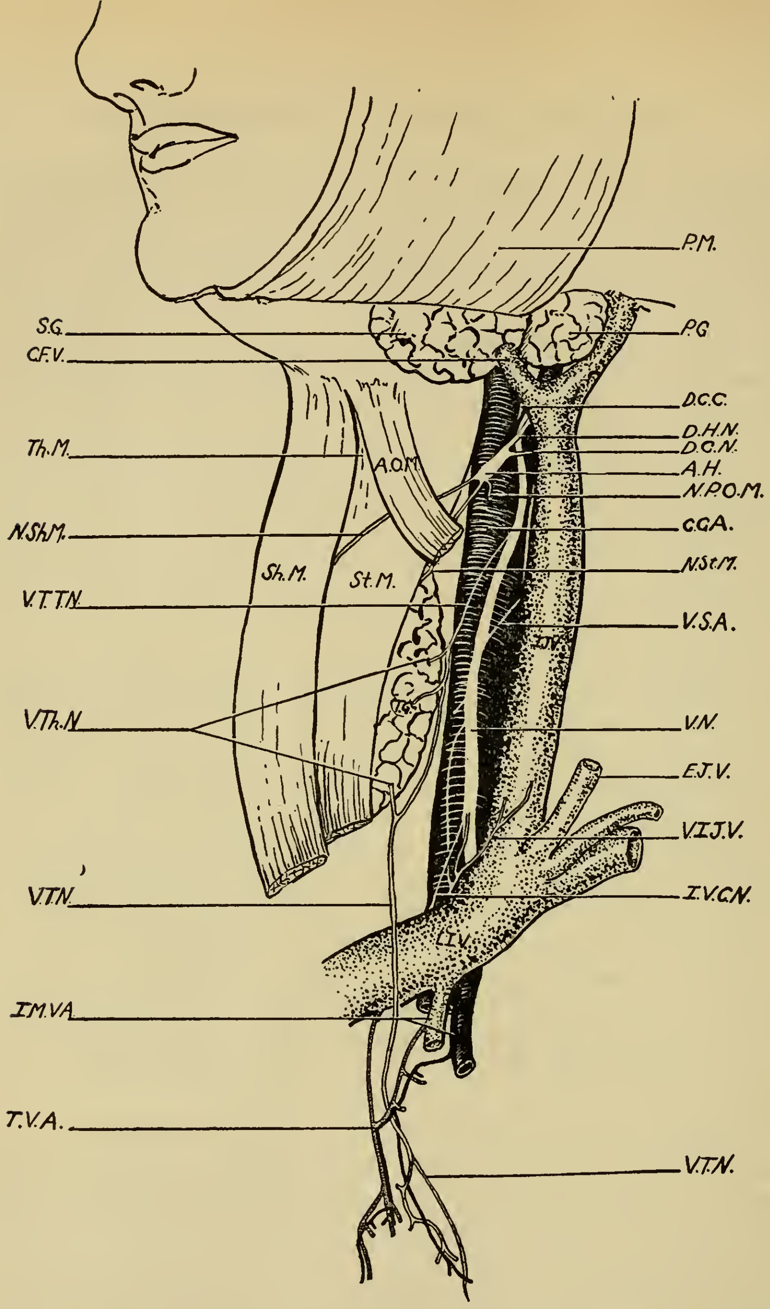

FIG. 2. THE CERVICAL REGION OF AN ADULT CADAVER SHOWING VAGUS NERVE CONTRIBUTIONS TO THYROID AND THYMUS

A.H., ansa hypoglossi; *A.O.M.*, anterior belly of omohyoid muscle; *C.C.A.*, common carotid artery; *C.F.V.*, common facial vein; *D.C.C.*, division of common carotid artery; *D.C.N.*, descending cervical nerve; *D.H.N.*, descending hypoglossal nerve; *E.J.V.*, external jugular vein; *I.J.V.*, internal jugular vein; *I.M.V.A.*, internal mammary vein and artery; *I.V.C.N.*, inferior cervical vagus cardiac nerve; *L.I.V.*, left innominate vein; *N.P.O.M.*, nerve to posterior belly of omohyoid muscle; *N.Sh.M.*, nerve to sternohyoid muscle; *N.St.M.*, nerve to sternothyroid muscle; *P.G.*, parotid gland; *P.M.*, platysma muscle (reflected cephalad); *S.G.*, submaxillary gland; *Sh.M.*, sternohyoid muscle; *St.M.*, sternothyroid muscle; *Th.M.*, thyreohyoid; *T.V.A.*, thymic vein and artery; *V.I.J.V.*, vagus branch to internal jugular vein; *V.N.*, vagus nerve; *V.S.A.*, vago-sympathetic anastomosis; *V.T.N.*, vagus thymic nerve; *V.Th.N.*, vagus thyroid nerves; *V.T.T.N.*, common vagus branch to thyroid and thymus.

(1928) deny their existence, however. Undoubtedly this anastomosis is not as constant as it is in the case of the superior laryngeal nerve; but, when it does exist, it is a means by which the recurrent nerve can provide sympathetic as well as parasympathetic fibers to the thyroid gland.

An accurate anatomical knowledge of the sympathetic-laryngeal anastomoses described above is essential for the understanding of certain data relative to thyroid physiology. Concerning the vaso-motor innervation of the thyroid gland, the intermingling of sympathetic and parasympathetic fibers in the laryngeal nerves may be the cause for apparently contradictory findings in experiments involving the stimulation of these nerves. For one may get vaso-constriction or dilatation depending on the relative number of sympathetic or parasympathetic fibers present in the nerve being stimulated. Cyon showed that the relative number of sympathetic and parasympathetic fibers in the superior and inferior laryngeal nerves of different animals is highly variable, and the results obtained from stimulation may range between the two extremes of maximum constriction and

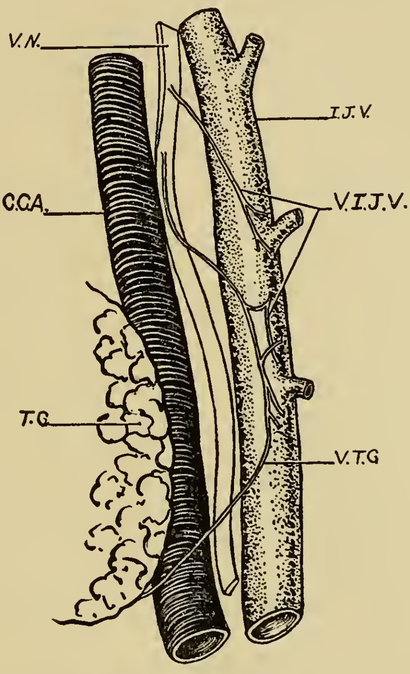

Fig. 3. The Cervical Region of an Adult Cadaver Showing a Contribution from the Vagus Nerve to the Thyroid Gland

C.C.A., common carotid artery; *I.J.V.*, internal jugular vein; *T.G.*, thyroid gland; *V.I.J.V.*, vagus branches to internal jugular vein; *V.N.*, vagus nerve; *V.T.G.*, vagus branch to thyroid gland.

dilatation. Confirming the physiological significance of the sympathetic-laryngeal anastomoses, Sinakwitsch (1906–07) showed by nicotine application to the superior cervical ganglion that the constrictor fibers in the superior laryngeal nerve have their origin in this ganglion. The next year Francois-Franck and Hallion (1908) reported the presence of thyroid constrictor fibers in the external laryngeal nerve. Stimulation of a nervous filament which joined the superior cervical ganglion to the external laryngeal nerve, or the latter peripheral to the point of anastomosis, evoked vaso-constriction in the thyroid gland. Asher and Flack (1911) obtained vaso-dilatation of the thyroid vessels upon stimulation of the superior laryngeal nerve. Inferior laryngeal nerve stimulation often produced vaso-constriction as well as the more usual dilatation. Ossokin (1914) obtained both constriction and dilatation in a series of experiments involving the stimulation of both laryngeal nerves.

In addition to the vagus contributions to the thyroid gland as described above, Ellenberger and Baum (1891) mention thyroid fibers from the inferior pharyngeal nerve in the dog; while Brauecker (1923a, b) describes a branch to the thyroid from the pharyngeal nerve in the human fetus. Also the cardiac branches of the vagus may give contributions to the thyroid gland as observed by Cyon (1897) and Brauecker (1923a, b).

Besides the contributions from the vagus and sympathicus, the thyroid gland receives fibers from the glossopharyngeal nerve according to Fuhr (1886) and Brauecker (1923b); the depressor nerve according to Cyon (1897) (1898); the first cervical nerve according to Fuhr (1886), and the hypoglossal and descendens hypoglossi nerves according to Brauecker (1923a, b) who claims that the latter nerves contain vagus and sympathetic as well as spinal elements. Brauecker (1923b) also includes the ansae cervicales, and Santenoise (1927) the first cervical ansa as possible origins of thyroid fibers.

It is highly improbable that all of the nerves mentioned above are directly concerned with thyroid activity. A more likely interpretation is one which considers those nerves which contribute fibers to the thyroid only infrequently as aberrant gross-anatomical pathways along which the true thyroid fibers may pass to their terminations. The numerous anastomoses which exist between the various nerves in the cervical region easily explain how these aberrant pathways might come into existence.

The Thyroid Nerves and the Cervical Plexus:—The cervical prevertebral plexus as described by Brauecker (1923) is made up of nerves which join the cervical sympathetic trunk and ganglia of one side with those of the other side. This plexus communicates with the thyroid, pharyngeal, and subclavian plexuses; and with the inferior thyroid nerve which arises from the subclavian plexus. The pharyngeal plexus according to Swan (1834), Brauecker (1923) and Greving (1931); and the tracheal and esophageal plexuses according to Brauecker are all connected to the capsular plexus of the thyroid.

The carotid plexus which is composed of vagus, glossopharyngeal and sympathetic branches is closely related to the thyroid, as reported by Haller (1766); Brauecker (1923a, b) and Nonidez (1931). The internal jugular and subclavian plexuses are also connected to the thyroid plexus; the former according to Brauecker (1923a, b); the latter according to Brauecker, and Flatow and Schilf (1928).

Brauecker describes a "plexus intervisceralis" which lies ventral to the trachea, and between the large vessels of the neck. This "plexus intervisceralis" is formed by the cardiac branches of the vagus and sympathicus, and by nerves from the plexuses on the large blood vessels; and through it the thymic, thyroid, tracheal, cardiac, and pulmonary plexuses are connected to one another. The parathyroids lie in the capsular plexus of the thyroid. A common source of vagus fibers (*V.T.T.N.*) to the thyroid (*V.Th.N.*) and thymus (*V.T.N.*) is evident in the dissection illustrated in figure 2.

On the basis of the nervous connections described above Brauecker (1923b, c) postulates a functional inter-relationship between the thyroid, parathyroids, thymus, and heart. He goes as far as to assert that thyroidectomy fatalities are often due to interference with the nervous connections between the thyroid and heart. This contention is hardly tenable, for there is no evidence for intervisceral reflexes of a purely peripheral nature as suggested by Brauecker, as far as I could ascertain. If Brauecker's thyreo-cardiac reflexes are accepted as possible, then intervisceral reflexes can be postulated for all of the organs of the body; for the autonomic plexuses throughout the entire body, from head to pelvis, really make up one net-work of nerves and thus indirectly connect all the viscera by means of a peripheral nervous mechanism. However, it can hardly be maintained that such a peripheral nervous mechanism can function without the intermediation of the central nervous system.

The Histology of the Thyroid Nerves:—Our knowledge of the finer distribution of the thyroid nerves can hardly be considered as free from discrepancies; for the findings of the various investigators do not agree in all instances. Because of this lack of harmony, it cannot be stated definitely that the thyroid nerves end in relation to the follicular epithelium, or that nerve cells are consistently present in the thyroid. The presence of vasomotor nerves is the only fact which is definitely established; for it alone seems to enjoy the concordance of all the investigators.

The earliest histological description of the thyroid nerves is that of Peremeschko (1867) who found these nerves in company with the blood vessels. Large branches, he observed, often surround the follicles in loops, and give off fine knob-bearing fibers which lose themselves in the perifollicular connective tissue. Peremeschko, in addition, observed nerve cells in the thyroid nerve trunks. Poincare (1875) and Zeiss (1877) also described a rich supply of nerves and ganglia in the thyroid. The latter considered the thyroid nerves as purely vaso-motor in nature, however.

The Afferent Thyroid Nerves:—Afferent nerve endings in the thyroid, were described by Jacques (1897), and more recently by Popow (1927) (1928). The latter described large, knob-like endings which may at times lie in the connective tissue near the follicles, but without being associated with the follicular epithelium. Also, less often, thick inter-follicular plexuses lie in the perifollicular connective tissue. These plexuses rarely give off end fibers; nor are they net-works, for they consist of non-anastomosing fibers which are entangled to give a plexiform appearance. These end-apparatuses can be considered, according to Popow, as part of an afferent receptor system which probably controls thyroid secretion reflexly. In addition Nonidez (1931a) found that thick, medium-sized and thin myelinated nerves pass to the thyroid. The medium sized and thin fibers, Nonidez claims, synapse in the ganglia present in the thyroid; but the thick fibers do not synapse, and, therefore, are afferent.

The Vaso-Motor Thyroid Nerves:—The nerves which enter the thyroid do so mostly in company with the blood vessels, a condition which such early investigators as Peremeschko (1867) and Poincare (1875) were aware of. The finer ramifications of the vaso-motor nerves were described by Zeiss (1877), Biondi (1888) and Crisafulli (1892) in some detail. Berkeley (1894) observed peri-vascular plexuses as far as the intermediate vessels; but Andersson (1894) described nerves in company with the capillaries and veins of the thyroid also; and according to him the nerve endings penetrated into the tunica media of the vessels. Trautmann's (1895) observations agree with Andersson's in all respects, except for the presence of nerve-endings in the tunica media, while Briau (1897–98) is in complete harmony with Andersson.

Among the more recent investigators, Rhinehart (1912) followed varicosed nerves into the tunica media of arteries. He also found plexuses along the capillaries and veins, the venous plexuses being less elaborate than those around the arteries, a condition previously observed by Andersson. Popow (1928) described vaso-motor nerve plexuses and nerve endings; but he could not follow the latter into the deeper layers of the vessels; while Nonidez (1932) claims that the nerves of the thyroid end chiefly about the arteries in the form of elaborate plexuses. He describes two types of terminations, one which he believes is probably sympathetic, and the other sensory. In a publication on the thyroid ganglia, Nonidez (1931a) concludes that the rarety of nerve cells in some thyroids indicates that they are concerned with the regulation of circulation, rather than secretion. Nonidez, like Zeiss (1877) and Sacerdotti (1894) believes that all of the thyroid nerves are vaso-motor in nature; and that true secretory nerves are either absent or very rare.

The Parenchymal or Secretory Thyroid Nerves.—Not all of the investigators are ready to admit that nerves terminate in relation to the follicular epithelium of the thyroid; and even if such terminations are present, they are so rare that one can hardly refer a secretory function to them. Peremeschko (1867) observed fine varicosed fibers in the interfollicular tissue, but he mentions no intimate relations between these fibers and the follicles. Poincare (1875) described what he believed to be a preponderance of follicular nerves, but it is very likely that he misinterpreted the peri-follicular connective tissue as nervous tissue. Zeiss (1877) and Biondi (1888) offer no evidence for the presence of true secretory nerve fibers in the thyroid.

Crisafulli (1892) was the first one to describe true follicular nerves; and Andersson (1894) confirmed his description of non-anastomosing follicular plexuses which contributed nerve-endings to the follicular epithelium. Andersson also observed that the follicular nerves arose from those which accompanied the blood vessels, and that the follicles did not have individual plexuses; but the nerves were diffusely scattered in the lobules. Berkeley (1894) however, described double peri-follicular plexuses and two types of terminal nerve fibers. One penetrated the intercellular cement substance; while the other type lay on the outer surface of the cells. Andersson, however, failed to observe any inter-cellular nerve endings. According to Berkeley not all of the cells of a follicle have nerve-endings associated with them; therefore the impulses are probably transmitted from a sort of receptor cell to the others. Though Sacerdotti (1894) observed fine fibers associated with the follicles in the dog and sheep, he, like Zeiss (1877) and Nonidez (1932), favors a purely vaso-motor interpretation for the thyroid nerves.

Trautmann (1895) failed to confirm Berkeley's intercellular nerve-endings; though he is in agreement with Briau (1897), and Rhinehart (1912) who agree quite closely with the findings of Crisafulli (1892) and Andersson (1894).

Popow (1927) (1928), who made detailed studies of the thyroid nerves in several species of animals, and in man, describes several types of follicular nerve endings. He stresses the fact that the nerve-endings lie in relation to the follicles as units, rather than to the individual epithelial cells. Nonidez (1932), however, denies the presence of follicular nerves, claiming that they are all vaso-motor in nature. Though most of the investigators report histological evidence for the presence of true secretory nerves to the thyroid, one can not disregard the negative evidence. Therefore a definite conclusion concerning the existence of true secretory fibers on the basis of histological investigation is not possible.

The Intrinsic Thyroid Ganglia:—Though Peremeschko (1867), Poincare (1875), Zeiss (1877), and Crisafulli (1892) all observed ganglia in their thyroid preparations, Andersson (1894) and Berkeley (1894) offer contradictory evidence. Andersson described artifacts due to the deposition of "chromesilber," which he claimed might have been mistaken for ganglion cells. Berkeley also described large cell-like varicosities which lay in the thyroid nerves.

Sacerdotti (1894), however, found numerous nerve cells in the thyroid of the dog; but Trautmann's (1895) and Rhinehart's (1912) observations agree with those of Andersson and Berkeley; while Briau (1897–98) does not mention any ganglia.

The contradictory nature of the observations of the various investigators is brought home all the more strongly when one considers Popow's (1928) failure to find nerve cells in the thyroids of many different species despite the application of a number of staining techniques. He did, however, observe artifacts which could be misinterpreted as nerve cells, as in the cases of some of the earlier investigators. But contrary to Popow's observations, Nonidez (1931a) reports and illustrates nerve cells in the canine thyroid with which he believes the pre-ganglionic vagus fibers synapse.

The Central Nervous System and the Thyroid Gland:—Having reviewed in detail our knowledge of the peripheral distribution of the thyroid nerves, it might not be amiss to try to trace any possible central thyroid pathways by referring to the meagre amount of data on hand concerning the rôle played by the central nervous system in thyroid activity. There is very little that can be said with any definiteness concerning the relation of the higher centers to thyroid activity. Filehne (1878) produced some of the symptoms of Basedow's disease by experimental destruction of a limited region of the corpus restiforme. Horsley (1886) claimed that sympathetic fibers descend from the medulla oblongata in the cervical part of the spinal cord as far as the eighth cervical segment, and then pass cephalad in the cervical sympathetic trunk to the thyroid. The above, and other speculations of earlier investigators have not been confirmed, however, as far as I could ascertain; for Spiegel (1928) in "Die Zentren des Autonomen Nervensystems," makes no mention of evidence for a thyroid center. More recently, however, Ceni (1931) claimed an inhibitory influence by the cerebral cortex on the thyroid gland; and Jedlowski (1932) who observed hyperplasia in the thyroids of decerebrate hens, confirms Ceni's contention.

The fact that Horsley (1886) was not altogether wrong in his description of the spinal pathway of the thyroid fibers was demonstrated by Wiener

(1909) who cut the 5th and 6th thoracic spinal nerves central to the origin of the rami communicantes and found a decrease in weight in the homolateral thyroid lobe in dogs. Though he did not investigate the 7th, 8th and 9th thoracic spinal segments, section of the 10th and 11th, produced no changes in the thyroid. Francois-Franck and Hallion (1908) obtained vaso-constriction of the thyroid vessels on stimulation of the spinal nerve roots as low as the 9th thoracic segment. Maximum effects were obtained, however, from the 6th segment.

SUMMARY

Though many origins have been described for thyroid nerves, the preponderance of evidence indicates that the latter have their source in the cervical sympathetic trunks and vagus nerves. It seems that in the greater number of cases the most common peripheral pathway of both the sympathetic and parasympathetic fibers to the thyroid lies in the course of the laryngeal nerves, most often the superior. The other pathways described can be considered as aberrant, and therefore infrequent.

The physiological significance of the common laryngeal pathways for both the sympathetic and parasympathetic fibers has been pointed out with relation to the vaso-motor system of the thyroid gland.

A review of the histological data shows that the evidence in favor of true secretory nerve endings in the thyroid gland can not be considered as conclusive; but, on the contrary, there is sufficient evidence for the existence of vaso-motor nerve endings. Afferent nerve endings have been described by several investigators. The inconsistency of the observation of nerve cells indicates that the latter are not always present in the thyroid gland.

Possible connections of the thyroid nerves with the higher centers, as well as our knowledge of the spinal origins of the thyroid fibers are considered briefly.

The author wishes to express his appreciation to Dr. Eduard Uhlenhuth for his most helpful guidance and criticism in the execution of the work reported.

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ARACHNIDISM[1]

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While spiders in general are considered by the laiety and even by physicians as insects whose bite is poisonous, this in fact is not true except in the case of certain species. The spider bite which is followed by local discomfort and swelling produces these symptoms not through the injection of a poison, but because of the introduction of organisms in the puncture wound with resultant local infection. There is, however, one spider found generally throughout the United States, with the exception of the corn belt and the northwestern states, whose bite is definitely poisonous. It is popularly called the "Black Widow Spider," but to entomologists it is known as "*Latrodectus mactans*." The bite of this spider is poisonous in the sense that it injects into its victim a substance which produces the train of symptoms which we will discuss hereafter. There have been many cases of illness following the bite of this insect reported from other states, but to my knowledge only one such report previously from Maryland.

Before discussing the clinical phase of this question, it might be interesting to mention some facts about the spider itself. The adult female alone is responsible for the biting of humans. Viewed from the dorsal side her body is composed of a minute head, a somewhat larger thorax and a large oval abdomen, all shiny black. From the thoracic segments arise four legs on each side, each with three joints. The abdomen is so globoid that many have called her the "Shoe Button Spider." In adult life, the female attains a maximum length of about 1½ inches of leg spread, and her abdomen may be as much as ½ inch in diameter. On the ventral surface of the abdomen there is a very characteristic bright red marking, which is shaped like an hour-glass. Often at the posterior tip of her abdomen there is a second red marking which is round but this is not quite as consistently found as the hour-glass. The male of the species bears many yellow markings in addition to the red ones mentioned for the female, and is somewhat smaller than the female. The name "Black Widow" takes its origin because of the fact that the female, after the eggs are fertilized, kills the male and sucks out his tissue juices. As a matter of fact, females are not particularly benign to one another, and if a large number of them are placed in a single container, it will not be long before two or three only will survive. This cannibalistic trait is common among spiders generally. The female, after her eggs have been fertilized, finds a place for herself and there builds a straggly web. It has no uniform architecture, and is extremely flimsy. The reason for this is the fact that the web is not used by this spider as a means of catching food, but is merely a support for the young spiders which will be hatched.

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She then deposits and builds her egg mass. This is a round mass of light yellow color and has about the same texture as a cocoon. The period of incubation within the cocoon is generally considered to be about two months, after which time the young spiders emerge through a tiny aperture and from 300 to 400 are born in this fashion. The mother promptly dies at this stage of the game and her tissue juices serve as food for the multitude of dependants.

The young, upon hatching, are chestnut red in color and about the size of an ordinary pin head. Concerning the growth of the small spiders from the time of birth through to maturity, we can offer no information, and it seems that this phase of its life cycle has never been studied. The adult spiders are capable of killing most insects by seizing and biting them. They do not devour their prey but merely suck the tissue juices. Generally they move rather sluggishly, though under favorable temperature conditions they can travel with considerable rapidity. Warmth and sunlight seem to make them particularly agile. The habitat of these spiders is under stones in moist, rich earth, or in piles of lumber, and not infrequently, as the case reports show, in out-houses. While the species *mactans* is found only in this country, other species of the same genus have a world-wide distribution. In Corsica and southern Europe, a species is known as *malmignatte.* In southeastern Russia there is a species known as *karakurti.* The *katipo* of New Zealand is an equally venomous member of this same genus.

Some experimental work has been done with the poison of this spider. Poison sacs have been removed and their content injected into various animals. However, reports by various observers are conflicting and there is very little in the way of actual data worth repeating. A summary of this work can be found in a paper by Bogen (1).

Up to 1926, 150 cases had been reported in this country. Most of the victims were farmers and rural laborers, but a minister and a college professor were included in this group. A majority of the individuals were bitten in out-of-door toilets, and in many cases the bites were on the external genitalia.

Regardless as to where the spider bites, the same train of events seem to repeat itself. There may be some local pain which will occur shortly after the bite, but this is not usually striking. Within an hour or two, however, severe cramp-like and excruciating abdominal pain appears and thereafter dominates the clinical picture. The patient breaks out in a cold sweat and presents a picture of pain, anxiety, and extreme restlessness, tossing from one side of the bed to the other. There may be some nausea and vomiting. Often the breathing is shallow and rapid with a sense of difficulty of inspiration. Slight cyanosis may be observed. Muscular twitching and tremors, speech disturbances, paralyses and convulsive seizures have been noted. Retention of urine is not infrequent. The patient may later develop slight jaundice. During the acute phase of the condition the temperature is often slightly elevated and there may be a moderate leukocytosis. The pulse is not characteristic; it may be rapid or slow. The chief physical findings are abdominal. The abdomen shows *a board-like rigidity*. It is a very striking phenomenon, unremitting, tonic, involuntary, and at the same time not accompanied by any deep sensitiveness or spasm on palpation.

The duration of the acute phase varies. Often the symptoms begin to abate within five or six hours but they may continue in the more severe cases for several days. There have been a few fatal cases. The mortality is, however, probably less than two per cent.

It is evident that unless a history of the spider-bite is obtained and the physician is acquainted with the clinical picture of this condition, a serious error may be made in considering the rigid abdomen owing to some acute surgical condition such as perforated gastric ulcer or acute pancreatitis. Many of these patients as a matter of fact have been placed in the hands of surgeons and some have had laparotomies performed.

No specific antidote for the poison of the *Latrodectus mactans* has as yet been discovered. Bogen has employed the serum of convalescent patients but the results have not been sufficiently definite to warrant any great effort to obtain this rare commodity.

Symptomatic relief may in some measure be achieved by the use of continued hot fomentations to the abdomen. In some cases striking benefit has seemed to follow the performance of lumbar puncture. It seems rational that this latter method should be given a thorough therapeutic trial.

Morphine has been found ineffective and its usage in large doses is probably not without danger. In all neurotoxic poisonings a respiratory paralysis is to be feared and one should avoid using drugs which have a depressant action on the respiratory center. Little benefit is to be derived from the administration of the barbituric acid compounds.

I am indebted to Dr. Pincoffs for permission to report the following case which occurred on his private service in the University Hospital.

CASE REPORT

The patient, a young man of 20 years, was admitted to the hospital at 8:15 a.m., April 19, 1933. His family and past history contained no data of importance. The morning of admission he had been suddenly awakened at 5:30 a.m. by a sharp pain in his right axilla.

The pain was very severe and he remarked to his father that he had "never felt a pain like that before." Within an hour he was suffering so severely that his father felt it advisable to take him in his car to the family physician. By this time he was suffering excruciating pain in his lower back and abdomen. The physician referred him directly to the hospital.

Shortly after admission the following note was made by Dr. Pincoffs:

"The patient is apparently in very severe pain which he refers to the abdomen. He is perfectly clear mentally and responds intelligently to questions. There is no evidence of disorientation.

"The pupils are equal and react to light; the extraocular movements are normal; no strabismus. The face is symmetrical. The tongue protrudes in the midline. The patient can swallow. Speech is undisturbed.

"Respiratory movements are a little rapid. The irregularity in breathing seems to be associated with the groaning. The chest expands well, and by percussion both diaphragms descend moderately well when the patient takes a deep breath. He states that he is hindered in taking a deep breath by the fact that his 'stomach won't come out.' The abdominal muscles are rigidly contracted, and the abdomen is intensely hard throughout. These muscles are not sensitive and there is no evidence of deep tenderness on pressure on the abdomen. The lumbar muscles do not seem rigid, and the patient sits up and lies down with apparent normal flexibility of the spine. There is no sensitiveness over the back muscles, but the patient states that at first he had a pain in the back in the lower dorsal region, which has now left that region and descended into the sacro-iliac region and into the hip bones on both sides. Passive movements of the lower extremities are normal. Active movements of the arms are normal as are those of the trunk and lower extremities. There is absolutely no Kernig sign and the neck is not at all rigid.

"The knee jerks and the ankle jerks are normal. There is no Babinski. Cremasteric reflexes are not obtained. The superficial abdominals are not obtained. The biceps, triceps, and periosteal-radials are present.

"The nasal mucosa is normal; external ears negative. Tongue somewhat coated. Mucous membranes of good color. The lymph glands in the neck, right axilla and groins are not enlarged. In the left axilla there are several old lymph glands the size of almonds. They are not sensitive. Percussion and auscultation of the lungs show no abnormalities, except for some diminution of breath sounds, perhaps due to the type of breathing. The heart sounds are clear and a little distant, regular and rather slow. The pulse is 60. Blood pressure 130/80. It is not possible to palpate any of the abdominal organs because of the rigidity. Percussion of the abdomen is normally tympanitic. Auscultation of the abdomen shows very little evidence of peristalsis to be heard at any point. Very occasionally a slight movement of gas is made out. The bladder does not appear to be distended. (The patient had voided within the hour of entering the hospital. He states that there was difficulty in initiating the flow of urine, but that it continued normally when started.) Hypospadias is present."

Hot, wet dressings were applied to the abdomen, and the pain ceased gradually about 11 a.m. on the morning of admission. The patient was slightly nauseated, but did not vomit during the day. Some general malaise and slight headache were complained of. The abdominal rigidity wore off more slowly than the pain, and was still noticeable at 8 o'clock of the same evening. The following morning the patient felt entirely comfortable. The superficial abdominal reflexes which were not obtained on admission were normally obtained at 11 a.m. the following day. On this second morning there was noted profuse sweating from knee to ankle, with dry feet, thighs and perineum. The patient stated that he had noticed this all morning and that there had been no sweating of the upper part of his body. On the morning of his admission, he had observed that there was free perspiration of his right axilla, the site of the bite, and that the left axilla was dry. His blood pressure on the second day remained at 120–130/70–72.

Laboratory Findings: Urine: Entirely negative. *Blood:* R.B.C., 3,680,000; Hb., 78 per cent; W.B.C., 10,200. *Differential Count:* P.M.N., 80 per cent; myelocytes, 1 per cent; meta myelocytes, 2 per cent; L.M. and trans., 2 per cent; lymph, 15 per cent. *Blood chemical tests:* N.P.N., 29; sugar, 100; chlorides, 260; CO_2 combining power, 57 per cent. Van den Bergh; direct prompt reaction—too little bile to read quantitatively.

The temperature was normal, except for one reading at midnight on the day of admission, when it rose to 99.6°. The pulse rate varied between 60 and 90. The respirations, which were 28 on admission, were 20 at the time of discharge.

It is perfectly possible that a serious diagnostic error might have been made in this patient's case but for the fact that his father suspected that he was suffering from an insect bite and therefore searched the boy's bed. Under the pillow he found a spider (Figs. 1 and 2) which he brought to us alive. This spider was obviously a *Latrodectus mactans*. Her abdomen was 0.75 cm. wide and 1.25 cm. in length. There were eight legs, each with three joints, rising from the thoracic segments. There were two palps and biting pincers. The abdomen was the size of a large marrow pea, and was glossy black on its dorsal surface. On its ventral surface there was the lacquer-red hour-glass mark mentioned above and on the posterior tip of the abdomen was a similarly colored rounded marking.

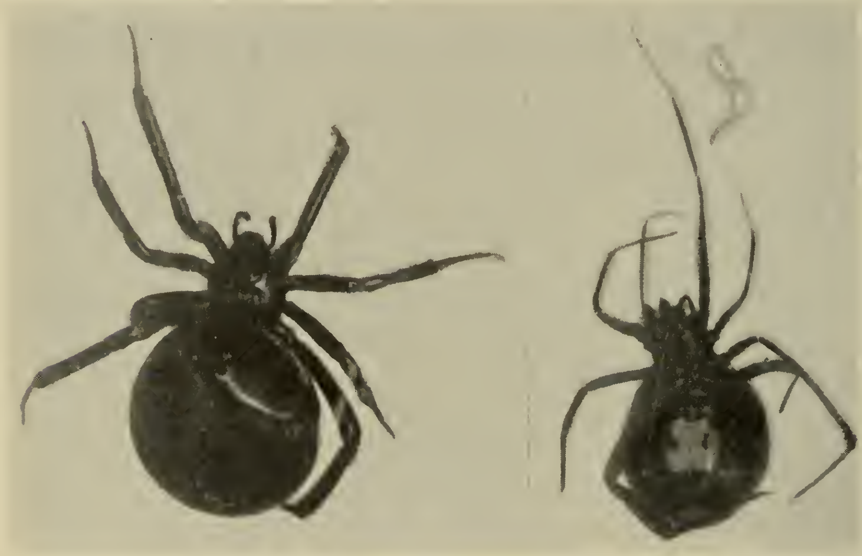

FIG. 1. Photographs of dorsal and ventral aspects of *Latrodectus mactans*

The spider was kept in a Petri dish where she spun a very flimsy web and deposited her egg mass. On several occasions flies and roaches were fed to her and these she approached with some caution and bit. They died immediately and remained in such a dried-up state that it certainly seems likely that she must have sucked most of the juices from them. After about six weeks or two months, her family of 300 to 400 was born and she promptly died.

This case is reported to draw attention again to the clinical importance of spider bites and to stress the fact that the extreme abdominal pain, abdominal rigidity, nausea and vomiting and slight leukocytosis resulting from such bites may be deceptive and lead to an unnecessary surgical operation.

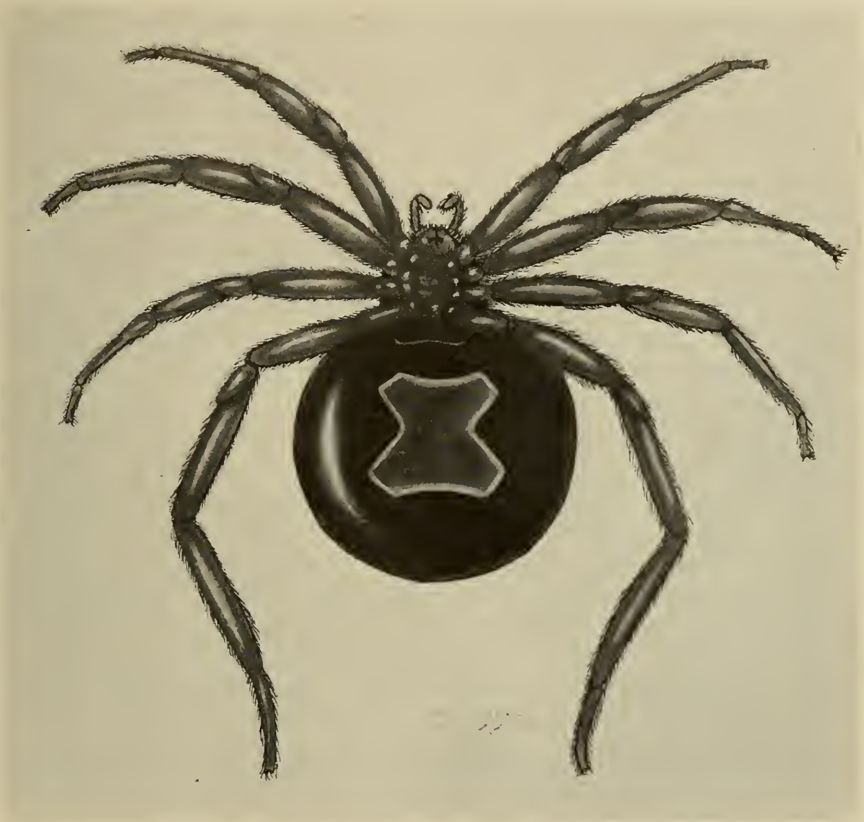

FIG. 2. Drawing of ventral view of *Latrodectus mactans* showing the hour-glass marking.

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PSYCHOTHERAPY FOR THE PRACTITIONER[1]

By JACOB H. CONN, M.D.

BALTIMORE, MD.

The acquisition of an ever increasing number of technical facts has led to the establishment of special groups of men whose interests have become restricted to one or another set of these facts. This is true in the physical sciences as well as in the medical specialties among which psychotherapy has been included. The application of psychotherapy, however, is not the business of a specialist or of any group of specialists. It is an intrinsic part of the everyday practice of medicine and enters when we begin to handle patients instead of their tissues or organs. The emphasis which has been placed upon these parts rather than upon the entire patient has confused many issues. The practitioner has been impressed with the fact that for every disorder there must be a disease process present somewhere, and that this process was to be found as some type of lesion. This concept is our scientific heritage. It was universally accepted because of the progress that was made when it was applied successfully to anatomy by Vesalius, to the studies of tissues by Malphigi, to physiology by Harvey, and to the study of micro-organisms by Pasteur and Koch.

The above conclusions are brought forcibly to our attention when we consider what has happened to those functions of human beings which could not be demonstrated as a lesion, as a something to be inspected, palpated, percussed, auscultated, X-rayed, or stained. What became of the false beliefs, the peculiar imaginations, the fears, and the distorted types of behavior? They were turned over to arm chair philosophers, to mystics, and poets, and more recently to the followers of numerous New Thought movements. From these sources arose the concept of a body and a mind as two isolated parts and many theories in order to account for their separation and interrelation. This confusion of ideas seemed hopeless, and the word went around: What is matter? Never mind. What is mind? No matter. But a few physicians held on to their common sense; they had handled many patients and had never seen a body walk in without a mind or a detached mind float in without a body. They could only see and therefore treat a person as an indivisible unit who came in to consult them because something or other had gone wrong. Their business consisted in finding out what had gone wrong, and under what conditions, and why?

We, therefore, begin by listening to what has gone wrong, that is, to the complaint of our patient. But it is a particular kind of listening. It must give the patient the impression that we are interested in *everything* that he is going to say; that we will not stop him suddenly by saying or even thinking, "Yes, I know all that, but we have not finished the cardiorespiratory part yet; we will get to what you are saying later." But there is no "later;" the patient loses heart and we forget. It isn't scientific, that is fashionable, to complain of an unfaithful wife, new responsibilities, or an imagination of one's dead father. Our patients must learn to complain in terms of "systems." Here is a patient with a long list of complaints,—"I'm dizzy; my heart hurts; I feel bad in the morning; I can't sleep; I have such bad dreams, I can't eat. I have aches and pains all over (no systems, if you please!); I am worrying all the time." "And," we ask, "Is that all?" "Anything more?" "Oh, yes, I can't go on; if all this don't stop, I'll do something desperate; I'll hang myself. I almost did it yesterday but my wife suddenly came into the room." The patient was hypochondriacal, psychoneurotic, a nuisance, if you will, but we have learned that the symptoms hang together and they may hang our patient. All this occurs in a setting of desperation and suicide is the outstanding risk. It took another minute but it was worth it. We are forewarned. A woman of fifty-two complained of "something peculiar to me—something moves in my stomach." She was urged to go on, "Yes, like?" "It's thorny, like something alive. It stretches out sometimes; it's a worm or a nervous condition." The symptom had been present for about ten years. During this time an appendectomy and hemorroidectomy were performed on the basis of these complains with no relief. Further examination revealed that this patient had been experiencing vivid visual and auditory hallucinations of the Lord to whom she felt herself consecrated. A half dozen physicians had seen this woman but apparently no one had listened to her complaint that it's "something peculiar to me—it's a worm or a nervous condition."

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[1] Paper delivered before the Sinai Hospital Internes Association, May, 1933.

Now that we have our complaint *in the words of the patient*, what next? A thorough physical examination and all the necessary laboratory tests is the prerequisite for any type of psychotherapy. Such a procedure not only reassures the patient but it offers us as physicians a worthwhile starting point in the evaluation of what actually has gone wrong. If we find that structural and physiological defects or disturbances are absent or present to a minor degree, do we have to say nothing is wrong, go home and forget about it, or it's only nerves? No. We ask ourselves why has this or that complaint been brought to our attention, and search further for what has gone wrong. We turn from the examinations of various organs and their performances to what has happened to the person We then inquire as to what is the *present situation* in which our patient finds himself? What has happened on the job? At home? In the marital relationship? What new responsibilities have occurred preceding or during this present illness?

And finally, what part do these facts play alongside of the structural and physiological facts which we have so carefully but so honestly evaluated.

A man of thirty-five with a good work record as a motorman on a city street car came in complaining of dizziness, trembling, and insomnia. He found it hard to begin his day's work and his appetite had suffered. A month previous to the present illness, he had been changed from his position as motorman to the position of both motorman and conductor on a one-man car. He found great difficulty in making change and starting the car. All this became aggravated after several traffic jams and he began to hate his job for the first time. After talking things over, the company was advised to return him to his old job as a motorman and within two weeks he was relieved of his "nervousness." Why did this man fall down on such a relatively simple increase in responsibility? We find the reason when we make an attempt to evaluate his intellectual assets, that is, his intelligence. Doesn't that require a special mental test? No; in most cases, all that one has to do is to ask about the schooling and the work record. Has your patient failed in the third or fourth grade and then worked as a laborer or a plumber's helper—never reaching his master's license? Then, as this motorman, he probably belongs to the great group of retarded adults who just manage to keep going even in good times.

After we have some idea of the physical status, of the intelligence and the present situation of our patient, we may need to know something of his emotional assets in order to explain his complaints. Does that require another test? All it requires is a simple account of his reactions to the daily events of life. Does he storm and throw up jobs when he is made to do something he would rather not do? Is he worrisome—always anticipating trouble? Is he already overconcerned about his health? Is this therefore the man to whom I can tell the "truth?" A colored man, age thirty-five had been receiving compensation for three years following a blow to the spine by a swinging steel beam. After three years of rest, he was still complaining of an inability to return to work because he had a "painful misery" in his lower spine. A thorough orthopedic examination and routine laboratory tests revealed no structural or physiological defects. But here was a patient who evidently had something wrong. The past history revealed that he had failed in the early grades of school and had been doing laboring work ever since. As a child, he awoke screaming because of terrifying dreams. He was a worrisome person who always anticipated the worst. His job in the drydock had been a source of constant apprehension. For about six months before the accident, he had been having terrifying dreams of being killed and struck down by the steel beams which swung by him. He dreaded going to work, but as he had a wife and three children, he went. One day it happened. He had been expecting it for six months, but here it was, and he was in a hospital and the company was paying him a full salary or as much as he could earn if he returned to a regular day's work. Can we see why this man's invalidism had taken a chronic course, and why he is unable to give up a life of ease in order to return to the dreaded job in the yards? This is not a case to continue compensation. If an easier, less frightening job is found for him, and the compensation gradually withdrawn, we may save this man from a life-time of dependent invalidism. But even if we cannot do this, at least we know why.

What else should we like to know? We should inquire about our patient's attitude to the future,—his plans and anticipations. A man of 55 had experienced an attack of coronary occlusion and had been treated in our out-patient department. When he returned after a long period of bed rest, he was greatly worried, and that worry was about the future. "Doctor," he asked, "will I ever get well? What are my chances?" When one gave him an opportunity to go on, he added, "Doctor, tell me the truth, have I got a cancer?" He was told the truth—he did not have a cancer.

Some of you may want to ask, "When does psychotherapy begin?" Psychotherapy has begun when the patient begins to tell his own story in his own way. We already have discussed the patient's story: his complaint, the life situation, his intelligence, the emotional assets, and his attitude to the future. What about his physician? Does he tell every unmarried male who is "nervous" to get a woman, or to just forget about it? Is he shocked at sex and its ramifications? Does he avoid the family responsibilities of his patient? Then he will never hear of these problems as they do not exist for him. Certainly the physician's prejudices influence the treatment of his patient. In a general discussion of this sort it is not possible to take up specific problems. However, there is one thing not to do; one thing that is done only too frequently. And that is to advise marriage or its equivalents as a part of a therapeutic program. Marriage is not therapy and never will be therapy. The person who cannot control his sex appetite or find the solution to the sexual strivings which the average person of his age readily finds, will not find marriage a panacea for his problems. It adds only new responsibilities, and it involves a second person and a series of dependents as time goes on.

The methods which we have discussed are adequate in handling the average case of "nerves" which comes into your office. There are, however, many complaints and distorted types of behavior that require other methods of investigation. These few cases belong to the specialist. They are readily differentiated from the more common varieties of the so-called functional nervous disorders, when we apply the simple procedures of just listening and talking. "All this is well and good," the busy practitioner may say, "but it takes time." Yes, it does. Those of us who are impatient, who want to effect a cure in the personality disorders by one swoop whether it be by suggestion, persuasion, hypnosis, or surgery, had better leave psychotherapy to others. Psychotherapy cannot be hurried. The patient must be at ease. He must be certain that his physician will not laugh or ridicule. The patient must feel that the physician really wants to help before he can unburden to him what, in many cases, he has known most of the time, was his real trouble. It is the physician who encourages, who reassures, who corrects misconceptions to be sure, but he waits until he has been told what the misconception is before he begins to correct. The physician may plan; he may advise, but more than anything else he is the impartial screen upon which the patient projects his feelings, his hopes, and his fears. In doing so he sees them, perhaps for the first time, as they really are, and shares them with an understanding and sympathetic adviser.

Our ideal general practitioner of the golden past was such a man. He knew that a trace of albumin plus heart enlarged two finger breadths to the left plus a rub in the left axilla plus a secondary anæmia did not equal a person or anything like a person. He saw a human being come into his office with one kind of complaint or another. He knew that everyone who came in to consult him was a sick man. He, therefore, never told anyone to go home and forget about it. Science is just beginning to get his viewpoint. Up to this time it has buried its human interest in an avalanche of test tubes, vital stains, metabolic readings, and X-rays. When more physicians adopt an attitude which will do justice to the individual patient, we will have a medical science which will be adapted to the handling of human beings as well as to guinea pigs.

1719 Eutaw Place.

BULLETIN

OF THE

SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND

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HONORABLE SAMUEL MOOR SHOEMAKER

The BULLETIN regrets to announce to its readers that the Honorable Samuel Moor Shoemaker, chairman of the Board of Regents of the University of Maryland, died on October 1, 1933, at his home, "Burnside," Eccleston, Baltimore County, Maryland. Mr. Shoemaker was the son of Samuel M. and Augusta Eccleston Shoemaker, and was seventy-two years of age. He had been sick for more than a year, but his condition became critical only a few days before his death.

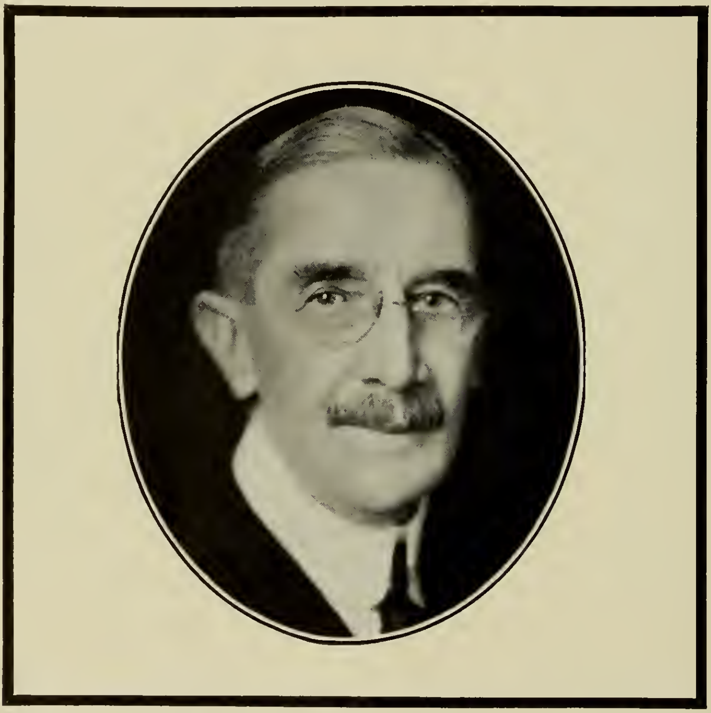
After his graduation from Princeton, in 1883, Mr. Shoemaker began to take at once an active interest in the affairs of his county and of the State. On his 1000 acre estate, he developed a nationally recognized dairy farm.

He was known as Maryland's "father of good roads." In the early years of this century, this man of vision began a quiet but effective campaign to get better roads for Maryland; and, as a result largely of his efforts, the General Assembly of Maryland, in 1904, passed what is called the Shoemaker Good Roads Bill. In 1908, Governor Crothers appointed Mr. Shoemaker a member of the first State Roads Commission. This personally active interest in good roads was a companion piece to his service in behalf of improved public school facilities. It was natural, therefore, that Mr. Shoemaker should have become a member of the Board of Education of Baltimore County, in 1902. In 1916, he was elected president of the board and in this position he served until his death. The high rating obtained by the Baltimore County public schools in the nation's free school system is another tribute to the zealous concern of Mr. Shoemaker in the cause of better education. Because of his deep interest in education and agriculture, Mr. Shoemaker was appointed in 1916 by Governor Harrington, chairman of the Board of Regents of the newly chartered Maryland State College of Agriculture (formerly the Maryland Agricultural College, 1856–1916), and chairman of the reorganized State Board of Agriculture (the Regents and the Board of Agriculture have the same personnel). When the Maryland State College and the old University of Maryland were merged in 1920, as the

University of Maryland, the Board of Regents of the Maryland State ColCollege was continued as the Board of Regents of the University of Maryland.

From 1916 until the time of his demise, Mr. Shoemaker gave his time and thought to the material, physical, and scholastic advancement of the University of Maryland without stint, without pay and without thought of praise or personal aggrandizement. Only last spring Governor Ritchie reappointed him a member of the Board of Regents for another term of nine years.

In 1929, the alumni of the University of Maryland tendered a banquet to Mr. Shoemaker in testimony of his valuable services to the institution.



In an editorial in *The Sun* of October 3, 1933, there is this paragraph: "Mr. Shoemaker enjoyed the respect and confidence of the public which has recognized his unselfish efforts to advance the welfare of the State not only in the betterment of agriculture but in whatever direction his aid was sought."

The University of Maryland mourns the death of Mr. Shoemaker. The institution has lost a good and faithful friend. His influence will affect the affairs of the institution for an indefinite period.

The Alumni Association of the School of Medicine expresses to Mrs. Shoemaker, to the daughter, Mrs. Johnson, and to the son, the Reverend Samuel M. Shoemaker, Jr., its profound sympathy and good will.

PROCEEDINGS

OF THE

UNIVERSITY OF MARYLAND BIOLOGICAL SOCIETY

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The University of Maryland Biological Society held its Forty-fifth Program Meeting on Thursday, January 26, at 8.30 p.m. in the Chemical Amphitheatre of the School of Medicine. Prior to the meeting dinner was served to the members and guests present in the dining room of the Alumni Association House.

The president, Dr. John C. Krantz, Jr., presided over the meeting. The paper presented to the society was "Oxidation-Reduction Potentials" by W. Mansfield Clark, Ph.D., De Lamar Professor of Physiological Chemistry, Johns Hopkins Medical School.

The Forty-sixth Program Meeting of the University of Maryland Biological Society was held Tuesday, February 21 at 8 p.m. in the Chemistry Building at College Park. Prior to the meeting dinner was served to the members and guests present in the University Dining Hall.

The president, Dr. John C. Krantz, Jr., presided over the meeting. The first paper presented to the society was "Factors Affecting Quality of Sugar Corn," by W. B. Kemp, Ph.D., of the Department of Agronomy, University of Maryland, College Park. The discussion of the paper was opened by Professor J. E. Metzger. The second paper presented was, "The Secretion Granules of the Thyroid Cells," by Eduard Uhlenhuth, Ph.D., of the Department of Anatomy, University of Maryland Medical School, Baltimore. Abstracts of these papers follow:

FACTORS AFFECTING QUALITY IN SUGAR CORN

BY W. B. KEMP, PH.D.

Department of Agronomy, University of Maryland, College Park

Sugar corn differs from field corn in the presence of a pair of factors recessive to the normal ones, together with various minor modifiers of these factors. As a result of this genetic difference, the normal deposition of the carbohydrates in the kernels is prevented and only about half of the carbohydrates are deposited as insoluble starch. The remainder is present as, so called, soluble starch. A high percentage of non-reducing sugar gives to the sugar corn a sweet taste.

Quality may be expressed as difference in sweetness, tenderness, kernel appearance, or appearance of the canned product.

Factors affecting quality may trace to man's treatment of the crop after it is grown, to soil treatment, to climate, or to the genetics of the plant.

Genetics will receive major consideration. However, some of the other factors should be mentioned. Increased age after the milk stage is reached results in loss of sweetness, increased toughness, but improved consistency of the cream style pack in the can. Also, any delay in getting the harvested corn on to the table or into the can results in rapid loss of sweetness.

Among the genetic characteristics that occupy an important place in the determination of quality may be mentioned the degree of uniformity in maturity and in all other characteristics accompanying the heterosis or hybrid vigor that obtains in the first generation of a cross between inbred forms. Long close husks help to protect from ear-worm injury. Yellow corns show a much higher content of Vitamin A than white corns. While it may be merely a coincidence, those sugar corns that appear to be of flint corn origin usually are sweeter than those of dent corn origin.

With growth of the industry of quick freezing for vegetables, one may expect green corn of high quality to be carried on the market throughout the year. This change in practice may necessitate changing the ideal type for which the corn breeder is working.

THE SECRETION GRANULES OF THE THYROID GLAND

By Eduard Uhlenhuth, Ph.D.

From the Gross Anatomical Laboratory, Department of Anatomy, University of Maryland Medical School

In introducing the subject reference is made to the existing theories on the granular structure of the protoplasma; current views on the relation between cell granules and secretion, on the development of secretion granules and on the nature of neutral red granules are discussed. In presenting his own work the speaker describes at first his findings in the fresh thyroid cells; granula have been found which are enclosed each in one vacuole and show a characteristic movement within the vacuole. Evidence is presented to show that the neutral red granules are identical with these preëxisting granules. Further evidence is adduced to prove that the cell granules found in sections of fixed thyroid tissue are the same granules which stain with neutral red in the living thyroid. The evidence presented consists in the identity of the changes which the three types of granules exhibit during development and cell activity. Photographs are shown to substantiate the speaker's statements.

From the facts presented the conclusion is drawn that the neutral red granules of the thyroid cell (1) are preëxisting granules and (2) are not identical with the Golgi apparatus. The question whether or not they are secretion granules in the same sense as the colloid droplets of the thyroid cell or the zymogenous granules of the pancreas cell, is left open.

The Forty-seventh Program Meeting of the University of Maryland Biological Society was held Tuesday, March 28, at 8.30 p.m. in the Chemical Amphitheatre of the University of Maryland Medical School. Dr. John C. Krantz, Jr., presided. The first paper of the evening was "The General Plan of the Thoracic and Abdominal Distribution of the Vagus Nerves," by Harry A. Teitelbaum, B.S., Fellow in Anatomy, School of

Medicine, University of Maryland. The second paper to be presented to the society was "The Secretory Pressure of the Liver," by N. Brewer, B.S., and F. A. Ries, M.D., of the Department of Physiology, University of Maryland Medical School. Abstracts of these papers follow:

THE GENERAL PLAN OF THE THORACIC AND ABDOMINAL DISTRIBUTION OF THE VAGUS NERVES

By Harry A. Teitelbaum, B.S.

Fellow in Anatomy, University of Maryland Medical School

On the basis of dissections in adult cadavers and infants it was found that the distribution of the vagi permitted of a regional classification in the thorax, which involved: (1) the region superior, and (2) that inferior to the cephalic borders of the pulmonary roots.

In the region inferior to the cephalic borders of the pulmonary roots the vagi are bilateral symmetrical. Their branches consist of: (1) lateral, which make up the pulmonary plexuses, and (2) medial, which are: (a) short, which pass to the interpulmonary and oesophageal plexuses, and (b) long, which pass to the oesophageal plexuses. At the inferior end of the latter plexuses the long medial branches of both vagi unite on the respective surfaces of the oesophagus to form the anterior and posterior vagus cords which pass to the abdomen.

The anterior vagus cord in the abdomen gives rise to gastric and hepatic branches; and contributes a branch to the left coeliac ganglion. The posterior vagus cord, on the basis of their points of origin, gives rise to: (1) right, (2) anterior, and (3) terminal branches. These may be classified as "direct" and "indirect" depending on whether they pass directly to the organs or take an indirect course through the coeliac ganglia.

THE SECRETORY PRESSURE OF THE LIVER

By N. Brewer, B.S., and F. A. Ries, M.D.

From the Department of Physiology, University of Maryland Medical School

The secretory pressure of the liver of forty dogs which had been fasted 24 to 48 hours was determined. We noted an average maximum secretory pressure of 285 mm. of bile. Increase in the secretory pressure of the liver had no significant influence on the rate of flow of bile until within a few centimeters of the maximum pressure; at this point a decrease in the rate of flow occurred. When pure bile salts are injected intravenously within 20 minutes after the onset of resorption there is a further increase in the secretory pressure. At a later time the injection of bile salts does not increase the pressure. However, if secretin is injected at a period as long as 45 minutes after the onset of resorption there is a further increase in pressure.

The Forty-eighth Program Meeting of the University of Maryland Biological Society was held at 8.30 p.m. on Tuesday, April 25, in the Chemical Amphitheatre of the School of Medicine. Dr. John C. Krantz, Jr., the president, presided over the meeting. The paper presented to the society was "The Effect of Ligation of the Sixth Aortic Arch on Amphibian Metamorphosis," by Frank H. J. Figge, A.B., of the Department of Anatomy of the University of Maryland Medical School. Mr. Figge demonstrated also some of his operated on animals and the controls. Below is an abstract of his paper:

THE EFFECT OF LIGATION OF THE PULMONARY ARCH ON AMPHIBIAN METAMORPHOSIS

By Frank Henry John Figge, A.B.

From the Gross Anatomical Laboratory, Department of Anatomy, University of Maryland Medical School

The effect of pulmonary arch ligation on metamorphosis of *Amblystoma tigrinum* varies with the environment. When this is optimum in regard to oxygen availability, the ligated animals metamorphose and survive as adults. The effect of the ligation in such an environment is evident only in the retardation of the onset of metamorphosis in general and gill reduction in particular.

By controlling the environmental conditions, it was possible to maintain an environment in which non-ligated animals metamorphosed slowly while ligated animals remained larval indefinitely.

Thyroid injections produce metamorphosis in ligated animals even at 6° to 10°C. The amount of thyroid extract necessary to produce any given change is far greater than that necessary to produce the same change in a non-ligated animal. It was not possible to produce metamorphosis in ligated animals by the combined action of low air pressure and low temperature by thyroid injection. The controls metamorphosed. Anterior lobe injections metamorphosed non-ligated animals, but produced only copious skin shedding in the ligated animals.

The hypothesis that gill reduction is related to the oxygen content of the blood sent to the gills is further substantiated. This is additional evidence in favor of the theory that the absence of the ventral portion of the pulmonary arch and the spiral valve in the Perennibranchiates is one of the factors responsible for the retention of gills in those forms.

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The names listed above are officers for the term beginning July 1, 1933, and ending June 30, 1934.

RICHMOND

It may be of interest to our alumni to hear that the graduates of the University of Maryland attending the recent meeting of the Southern Medical Society at Richmond, Virginia, held a reunion and dinner on Thursday night, November 16, 1933, at the John Marshall Hotel. Dr. Theodore Kohn was in charge of arrangements and Dr. W. H. Toulson was toastmaster. The occasion afforded opportunity for the renewal of old friendships. The good food and fellowship was thoroughly enjoyed by those who attended the affair. It is such events as this that helps to bind the alumnus to his alma mater. A list of those present follows:

Anderson, Dr. R. S., class of 1924, Rocky Mount, N. C.
Anderson, Dr. Lang W., class of 1918, Wilmington, Del.
Ashworth, Dr. W. C., P. & S., class of 1892, Greensboro, N. C.
Bonner, Dr. O. B., class of 1917, High Point, N. C.
Beck, Dr. Harvey G., P. & S., class of 1896, Baltimore, Md.
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Bridgers, Dr. Harvey C., class of 1915, Blue Ridge Summit, Pa.
Copeland, Dr. Charles E., P. & S., class of 1893, Charleston, W. Va.
Daves, Dr. J. T., class of 1917, Danville, Va.
Goldstein, Dr. A. E., P. & S., class of 1912, Baltimore, Md.
Harrison, Dr. G. Blight, class of 1905, Fredericksburg, Va.

Hoag, Dr. J. Morley, P. & S., class of 1902, Baltimore, Md.
Hogan, Dr. John F., P. & S., class of 1911, Baltimore, Md.
Helms, Dr. S. T., class of 1929, Baltimore, Md.
Keith, Dr. Marion Y., class of 1926, Greensboro, N. C.
Kemler, Dr. Joseph I., class of 1907, Baltimore, Md.
Kohn, Dr. Theodore, class of 1928, Baltimore, Md.
Kendall, Dr. B. H., class of 1929, Shelby, N. C.
Lowry, Dr. John A. B., class of 1915, Crewe, Va.
Lyell, Dr. R. O., class of 1902, Miami, Fla.
McCarty, Dr. Harry D., class of 1905, Baltimore, Md.
Moore, Dr. John L., P. & S., class of 1886, Richmond, Va.
O'Mara, Dr. John T., class of 1903, Baltimore, Md.
Pepper, Dr. J. K., P. & S., class of 1907, Winston-Salem, N. C
Phillips, Dr. L. D., class of 1919, Marshallton, Del.
Plecker, Dr. W. A., class of 1885, Richmond, Va.
Pollock, G. F., class of 1923, collegiate department, College Park, Md.
Robinson, Dr. H. M., class of 1909, Baltimore, Md.
Rogers, Dr. Harry L., P. & S., class of 1915, Baltimore, Md.
Rowe, Taylor P. (D.V.S.), class of 1924, collegiate department, Richmond, Va.
Seay, Dr. T. W., class of 1921, East Spencer, N. C.
Simpson, Richard L. (D.D.S.), class of 1896, dental department, Richmond, Va.
Smith, Dr. A. W., class of 1933, Roanoke, Va.
Tarun, Dr. William J., class of 1900, Baltimore, Md.
Taylor, Dr. J. T., class of 1908, Greensboro, N. C.
Todd, Dr. William J., class of 1889, Baltimore, Md.
Toulson, Dr. W. H., class of 1913, Baltimore, Md.
Valentine, Dr. A. W., class of 1904, Washington, D. C.
Winslow, Dr. Nathan, class of 1901, Baltimore, Md.
Winstead, Dr. J. L., class of 1925, Greenville, N. C.

ITEMS

The Medical Branch of the University of Maryland Alumni Association located in Washington held a well attended meeting at the University Club, November 24, 1933. Among the distinguished guests were: Dean J. M. Rowland, Colonel Norman T. Kirk of the Walter Reed Hospital and Surgeon-General Rupert Blue, of the U. S. Public Health Service, retired. The gathering was a very enthusiastic one. Several officers of the College Park Branch gave very instructive talks, which helped lots in creating a better understanding between the two schools.

Dr. A. W. Valentine, Washington, D. C., class of 1904, is Secretary of the University of Maryland Medical Alumni Association of the District of Columbia.

Dr. Philip Lee Travers, class of 1902, Gallup, N. M., was a recent visitor at the University Hospital.

Dr. R. S. Griffith, P. & S., class of 1886, is located at Basic City (Waynesboro), Va.

Dr. H. C. Hull, Baltimore, Md., class of 1932, spoke on Perforation of the Gall Bladder at the monthly meeting of the University Hospital Staff, held November 20, 1933, and Dr. H. V. Langeluttig, Baltimore, resident physician, on Spontaneous Subarachnoid Hemorrhage in a Young Man.

Dr. J. V. McAninch, P. & S., class of 1914, is located at Alicia, Pa.

The Society of Clinical Surgery was entertained by the members of the surgical staff of the University of Maryland, November 4, 1933. The programme was as follows:

Operative Clinics

Dr. Arthur M. Shipley: Direct Inguinal Hernia Closure of Herniotomy Wound by Attached Fascial Suture.
Dr. Charles Bagley, Jr.: Excision of Brain Tumor by Electro-surgery.
Dr. Frank S. Lynn: Amputation of the Breast for Malignancy.
Dr. Charles Reid Edwards: Resection of Gastric Ulcer.
Dr. Edward A. Looper: Throat Operations.

Dry Clinics

Dr. Grant E. Ward: Exhibition of Cases of Late Cancer Treated by Combined Methods.
Dr. Charles Reid Edwards: Use of Sclerosing Solutions in Treatment of Congenital Fistulae.
Dr. J. Mason Hundley, Jr.: Discussion of Uterine Bleeding and Newer Methods of Treatment.
Dr. Arthur J. Lomas: Interesting Facts Concerning the New University of Maryland Hospital.
Dr. Henry J. Walton: Irradiation of Malignancy (Exhibition of Cases).
Dr. Walter D. Wise: Spontaneous Rupture of the Spleen (Report of Case).
Dr. Frank S. Lynn: Cholecystectomy in a Typhoid Carrier.
Dr. W. Houston Toulson: Embryonal Carcinoma of Abdominal Testicle in a Pseudo-Hermaphrodite.
Dr. Arthur M. Shipley: Peritonitis Complicating Appendicitis.
Dr. T. B. Aycock: Demonstration of Nerve Supply to Heart upon Specimen Prepared in the Anatomical Laboratory.

Dr. Charles Reid Edwards, Baltimore, Md., class of 1913, has been elected a member of the Society of Clinical Surgery.

Dr. Arthur M. Shipley, Baltimore, Md., class of 1902, and Dr. Fred W. Rankin, Lexington, Ky., class of 1909, are members of the Society of Clinical Surgery.

Dr. John E. Savage, Baltimore, Md., class of 1932, has given to the University of Maryland Library a collection of medical books from the library of Dr. Lewis J. Battle, of Washington, D. C., in memory of his brother Arthur McM. Savage (October 1, 1911–April 30, 1925). Dr. Savage is an assistant resident in obstetrics, University of Maryland Hospital.

Dr. Compton Riely, Baltimore, Md., class of 1897, is convalescing from an attack of Malta fever.

Dr. W. A. Plecker, class of 1885, is registrar of vital statistics, Richmond, Va.

Dr. Zack D. Owens, class of 1930, is on the surgical staff of the Albemarle Hospital, Elizabeth City, N. C.

Dr. Abdon V. Piskorski, Jersey City, N. J., P. & S., class of 1902, was chairman of the General Casimir Pulaski Memorial Skyway Dedication Committee. The Pulaski Skyway is the longest and highest viaduct in the world devoted exclusively to motor vehicles. It is 3.5 miles long. The height of the roadway is 100 to 147 feet. The deepest pneumatic caisson foundation was 147 feet. It spans the Hackensack and Passaic Rivers.

Dr. Byron H. Jackson, Scranton, Pa., B. M. C., class of 1898, has just completed his term as president of the Radiological Society of North America and is an ex-vice-president of the American Congress of Radiology. Dr. Jackson is a fellow of the American College of Radiology, a honorary member of the Royal Society of Medicine and a member of the American Roentgen Ray Society.

Dr. Arthur W. Erskine, Cedar Rapids, Iowa, B. M. C., class of 1908, is a specialist in radiology.

The annual dinner of the Baltimore Medical Club of New York was held at the Fraternity Clubs Building, 22 E. 38th St., on Thursday evening, December 7, 1933. The guest speaker was Dr. Charles Bagley, Jr., Baltimore, class of 1904, who chose as his subject: The History of Modern Neurological Surgery. This society is composed of graduates of the Baltimore Medical Schools residing in the Metropolitan district.

Dr. Edward A. Looper, Baltimore, Md., class of 1912, is a member of the Council of the Southern Medical Association.

Dr. Ernest H. Gaither, Baltimore, Md., B. M. C., class of 1905, is secretary of the section on gastroenterology of the Southern Medical Association.

Dr. Julius Friedenwald, Baltimore, Md., P. & S., class of 1890 and Dr. Maurice Feldman, Baltimore, Md., class of 1916, read a joint paper before the section of gastroenterology of the Southern Medical Association on November 16, 1933, entitled "Clinical Observations on the Redundant Colon."

Dr. Fred W. Rankin, Lexington, Ky., class of 1909, read a paper before the surgical section of the Southern Medical Association on November 16, 1933, entitled "Multiple Polyps of the Colon."

Dr. Edward A. Looper, Baltimore, Md., class of 1912, read a paper before the section on Ophthalmology and Otolaryngology of the Southern Medical Association on November 16, 1933, entitled "Cancer of Larynx: Laryngectomy."

Dr. Huntington Williams, commissioner of health of Baltimore city and a graduate of the Johns Hopkins University School of Medicine, class of 1919, has been appointed professor of hygiene and public health as successor to the late Dr. C. Hampson Jones.

Dr. Henry Alvan Jones, Baltimore, Md., class of 1928, announces the opening of his office at 1107 St. Paul St. He limits his practice to orthopedic surgery.

Dr. Everard Briscoe, Prince Frederick, Md., class of 1918, is president of the Calvert County Medical Society.

WEDDING

Dr. Frederick S. Wolf, Baltimore, Md., class of 1928, was married on October 3, 1933, to Miss Betty Saunders Stern, of New York.

DEATHS

Dr. Ava Hamlin Fenn, Meriden, Conn.; P. & S., class of 1886; aged 86; died, September 15, 1933, of cardiac disease.

Dr. Albert Edwards Wilson, Norfolk, Va.; class of 1896; aged 65; died in September, 1933, of prostatic hypertrophy.

Dr. David C. McKenzie, Granville, N. Y.; class of 1891; aged 67; died, September 17, 1933, of pulmonary tuberculosis.

Dr. Haude T. Dacus, Williamston, S. C.; B. M. C., class of 1902; aged 54; died, September 13, 1933.

Dr. Benjamin Franklin Iden, Manassas, Va.; Washington University School of Medicine, class of 1872; aged 89; died, September 22, 1933, of an injury received from a kick by a horse.

Dr. DeAlton Burr Potter, Salisbury, Md.; class of 1904; aged 54; died, September 12, 1933, of cardiac disease.

Dr. John Elmer Schaefer, Cogan Station, Pa.; P. & S., class of 1896; aged 65; died, September 17, 1933, of splenomyelogenous leukemia.

Dr. Harry Nathaniel Mayo, Los Angeles, Calif.; B. M. C., class of 1895; fellow of the American College of Surgeons; served during the World War; aged 65; died, September 7, 1933, of arteriosclerosis.

Dr. Robert Wales Prentiss, Middlebury, Vt.; B. M. C., class of 1901; aged 61; died, May 30, 1933, of chronic myocarditis and acute dilatation of the heart.

Dr. Lauren Clay Thomas, Latrobe, Pa.; P. & S., class of 1887; aged 73; died, June 16, 1933, of cerebral hemorrhage and chronic nephritis.

Dr. Alvin McClung, Beverly, W. Va.; P. & S., class of 1915; aged 43; died, May 13, 1933, of cardiac infarction.

Dr. John Claude Potter, Framingham, Mass.; B. M. C., class of 1905; aged 54; died, July 30, 1933, of cardiac disease.

Dr. John Frederick Hempel, Baltimore, Md.; B. M. C., class of 1894; assistant commissioner of health and director of the bureau of sanitation; at one time sanitary inspector of the city health department and coroner; aged 69; died, October 20, 1933, of chronic interstitial nephritis. Dr. Hempel received his early schooling at Knapp's Institute. In 1885, he was graduated from the Maryland College of Pharmacy, now the pharmaceutical department of the University of Maryland. From 1896 to 1898, he lectured on materia medica at the Baltimore Medical College. Dr. Hempel married Elsie Bell Warren by whom he is survived, as well as by a son William and a daughter Mrs. John Henry Traband, wife of Dr. J. H. Traband, Baltimore, class of 1912.

Dr. Thomas Meares Green, Wilmington, N. C., class of 1900; fellow of the American College of Surgeons; aged 54; died, September 14, 1933, of myocarditis.

Dr. Harvey M. Griggs, Philadelphia, Pa.; class of 1890; aged 67; died, August 20, 1933, of injuries received in an automobile accident.

Dr. Frederick Symon Cate, Los Angeles, Calif.; class of 1898; aged 72; died, August 14, 1933, of chronic myocarditis, arteriosclerosis and cirrhosis of the liver.

Dr. Samuel A. Bain, Baltimore, Md.; B. M. C., class of 1894; aged 65; died, September 25, 1933, of chronic myocarditis and asthma. Dr. Bain was born at Fairville, Wayne County, N. Y., on April 19, 1868.

Dr. James S. Boyers, San Diego, Calif.; B. M. C., class of 1882 and Jefferson Medical College (1883); past president of the state board of health of Indiana; aged 81; died, October 1, 1933, of coronary sclerosis and arteriosclerosis.

Dr. Joseph Connor Joyce, Annapolis, Md.; class of 1908; health officer of Annapolis; aged 48; died, September 22, 1933, of septic laryngitis.

Dr. Amos E. Smith, Walkerville, W. Va.; P. & S., class of 1909; aged 60; died, July 31, 1933.

Dr. Ralph Charles Fish, Worcester, Mass.; B. M. C., class of 1894; aged 64; died, September 28, 1933, of arteriosclerosis.

Dr. Girlonza L. Wyatt, White Sulphur Springs, W. Va.; P. & S., class of 1903; aged 55; died, October 1, 1933, of angina pectoris.

Dr. Howard A. Long, Brickerville, Pa.; B. M. C., class of 1893; aged 61; died, September 14, 1933.

Dr. George H. Mathews, Union Springs, N. Y.; B. M. C., class of 1884; aged 88; died, July 21, 1933, of chronic endocarditis.

Dr. Stuart Cassard, Towson, Md.; B. M. C., class of 1895; bank president; never in practice; aged 60; died, November 13, 1933.

Dr. John Joseph Magner, Hackensack, N. J.; P. & S., class of 1903; aged 59; died, October 25, 1933, of chronic cardiovascular disease.

Dr. Arthur Wellington Rusmiselle, Washington, D. C.; P. & S., class of 1877; aged 84; died, October 3, 1933, of nephritis.

Dr. Hugh Ratchford Black, Spartanburg, S. C.; class of 1883; fellow of the American College of Surgeons; past president of the city board of health; at one time bank president; aged 76; died, October 8, 1933, of pulmonary embolism consecutive to an amputation of the thigh for gangrene.

Dr. Charles W. Blagden, Norfolk, Mass.; P. & S., class of 1894; member of the Associated Anesthetists of the United States and Canada; aged 66; died, October 4, 1933, of arteriosclerosis.

Dr. Percy Roland Fisher, Denton, Md.; class of 1897; served during the World War; at one time health officer of Caroline County; aged 59; died, October 26, 1933, of cardiac disease.

Dr. Howard C. Silver, Baltimore, Md.; class of 1888; aged 72; died, October 22, 1933, of coronary thrombosis.

Dr. Thomas Morgan Lumpkin, Baltimore, Md., B. M. C., class of 1888; aged 69; died, November 22, 1933. Dr. Morgan Leroy Lumpkin, class of 1919 and Dr. Lloyd Huber Lumpkin, class of 1926, are sons.

Dr. James Austin Payzant, Vancouver, B. C.; P. & S., class of 1884; aged 77; died, September 14, 1933, of coronary disease and chronic endocarditis. Dr. Payzant was born in Hants County, Nova Scotia and was the son of Dr. Elias N. and Caroline Paysant. After graduating he took post-graduate work at the University of the City of New York and later studied at the Royal London Ophthalmic Hospital and the Central London Throat and Ear Hospital. For several years he practised his profession at Burlington, N. S., then he moved to Wallace, Idaho, where he lived until 1903. He later practised at Spokane, Wash., Alaska, and Seattle, Wash. Following the World War, he settled in Halifax, N. S., but in 1925, he retired and went to Vancouver.

Dr. Eldridge Eakin Wolff, Cambridge, Md.; class of 1899; president of the Medical and Chirurgical Faculty of the State of Maryland (1932); member of the state board of medical examiners of Maryland since 1917 and at the time of his death its vice-president; assistant medical examiner for Dorchester County during the World War; formerly president of the Dorchester County Medical Association; aged 59; died, November 7, 1933, of a lingering illness. Eldridge H. Wolff, a student at the University of Maryland, is a son. Dr. Wolff had built up a large practice on the Eastern Shore. He was widely and favorably known and was greatly beloved by his patients and friends.

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OSTITIS TUBERCULOSA MULTIPLEX CYSTOIDES (JÜNGLING) AND ITS RELATION TO SPINA VENTOSA, WITH A PRELIMINARY REPORT OF A CASE

By FRANCIS A. ELLIS, M.D., and H. M. ROBINSON, M.D.

BALTIMORE, MARYLAND

Spina ventosa is a true tuberculous dactylitis which occurs mostly in infants or young children and is characterized by enlarged fingers or toes, caseation, sequestration, and sinus formation. In this type of tuberculosis of the phalanges the etiology can easily be proved by animal inoculations. The term spina ventosa refers only to the clinical appearance of the fingers. It means, literally, a wind blown spine or process. Other bones occasionally may be involved.

In 1892, Hallopeau (1) reported a case of lichen scrofulosorum in which a non-perforating type of spina ventosa was present. Lichen scrofulosorum is a tuberculide in which the organism cannot be found.

After the roentgen rays came into general use non-perforating types of spina ventosa were reported by Kienbock (2) and by others. In 1910, Rieder (3) reported two cases of non-caseating types of spina ventosa in adults who also had cutaneous lesions, lupus pernio (also a tuberculide).

In 1919–21, Jüngling (4) reported four cases of non-sequestrating spina ventosa in which the roentgenograms showed bone changes essentially of two kinds: (*a*) Beehive type with numerous small, well defined areas of decreased density; (*b*) single or multiple large areas of sharply outlined cystic-like alteration in the bones. Many of these defects had the shape of a cat's heart. The bones were not enlarged. There was no sequestration nor sinus formation. These pseudocystic areas may become so large or numerous that the bones collapse under ordinary stress and strain, yet there is none of the changes found in true ostitis of tuberculous origin. The joints are not involved by direct extension, and periostial changes are also strikingly absent. Jüngling proposed the name "ostitis tuberculosa multiplex cystica." Later when these unusual radiological findings were proven by biopsy not to be cysts, but made up of chronic granulation tissue consisting of epitheloid cells, small round cells, and connective tissue, he changed the name to ostitis tuberculosa multiplex cystoides. This name has been generally accepted by subsequent authors.

In 1928, he (5) reported nine cases of his own and collected forty-six others from the literature. Twenty-eight of these were associated with lupus pernio, twelve with Boeck's sarcoid (these two dermatological diseases are very closely related and are known as tuberculides), four cases with true cutaneous tuberculosis, and eleven cases in which the skin was negative or was not mentioned. Thus, from the cases reported it appears that about 72 per cent of ostitis tuberculosa multiplex cystoides occurred in association or concurrent with a form of skin tuberculosis in which the histological picture is so characteristic that the diagnosis can be made very easily. This fact had been mentioned by Boeck (6) in his original report in 1899.

Histologically the lesions appear as well defined nests, the center of which is composed of perfectly preserved epitheloid cells with an occasional giant cell, and at the peripheria, of a varying number of small monocytes, and the whole is circumscribed by a capsule of connective tissue of varying extent. Necrosis or caseation is never present. Another diagnostic feature of importance is that these patients show a marked anergy to old tuberculin in contrast to the reaction in cases of true tuberculosis cutis. Tubercle bacilli are very rarely found either by direct examination or by animal inoculations. Kyrle (7) and a few others have been able to find the organisms in very early lesions.

Our intention has not been to engage in a detailed discussion on the etiology of the tuberculides but mention only some of the better known and accepted facts in order to contrast them with the findings in the case herein presented.

E. J., age 43 years, colored, male, truck driver, was first seen in the surgical dispensary of the University of Maryland Hospital. In April, 1933, he was admitted to the University Hospital on the service of Dr. C. Reid Edwards.

The past history was negative except for an attack of syphilis for which he had received intensive treatment before the present condition appeared. The general health had always been good.

The present condition began three years ago when the patient noticed that his fingers had begun to swell. They soon became so large that their movements were markedly restricted. There was no pain or tenderness. The skin at this time showed no changes except those due to its stretching over the swollen fingers. Two years ago the patient noticed an eruption on the face, neck, scalp, ears and nose with, still later, involvement of the elbows and knees.

The physical findings were normal, except those already mentioned. There was no local or general glandular enlargement. The chest, heart, etc., were normal for the patient's age. The elbows and knees presented each a single plaque-like lesion, 3 cm. in diameter, slightly raised, moderately infiltrated and covered by a thick, fairly adherent scale (tuberculosis verrucosa cutis). The face, neck and scalp were covered in about one third of their entire extent by well defined plaques which varied in size from several mm. to several cm. in diameter. They were moderately inflamed and infiltrated, but had less scales than those on the elbows and on the knees. Only the ears and nose showed definite signs of tissue destruction. The scalp showed, besides the plaque-like lesions, a large oval lesion 6 by 8 cm. in diameter with a border of activity of 1 cm. in width. The hair in the diseased areas was not affected. The tip of the nose and the free border of the ears were covered by similar confluent, infiltrated papules, but differed in that loss of tissue was quite marked, as mentioned above. Most of the lobes of the ears were destroyed. No ulcers were seen. The fingers were twice their normal size at the bases, but they tapered to their normal size over the terminal phalanges. There was some erythema and

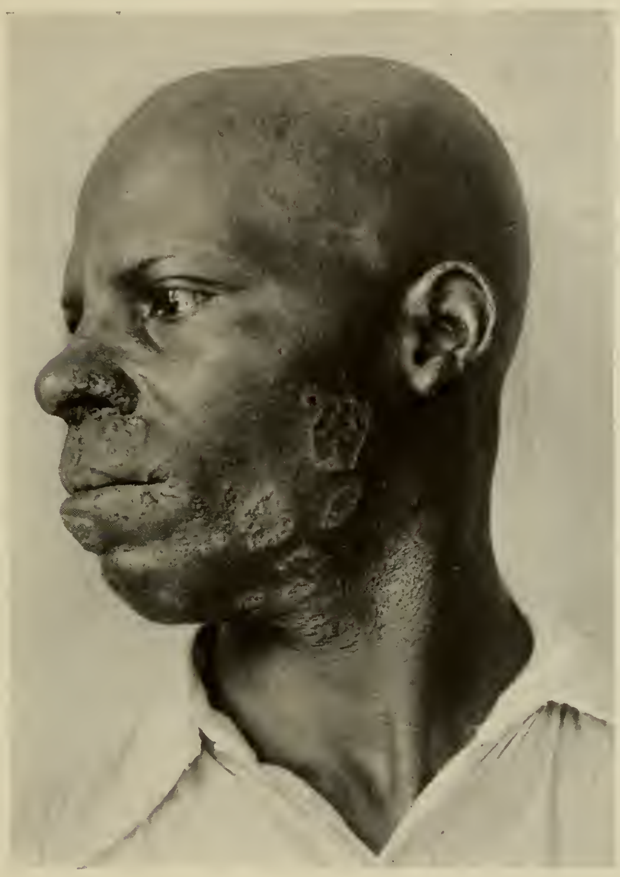

FIG. 1. LUPUS-VULGARIS-LIKE LESIONS IN THE CASE OF TUBERCULOSA MULTIPLEX CYSTOIDES

exfoliation around the bases of about half of the finger nails and the corresponding nails showed longitudinal ridging and were brittle. The left little finger was bent sharply at a right angle to the shaft over the middle phalanx.

The roentgenological examination of the hands demonstrated punched-out cystic areas of various sizes in the phalanges and heads of the metacarpal bones. There was considerable absorption of several of the phalanges of both hands, but no evidence of periostitis, of sequestra or of atrophy from disuse, and the joints weren't involved. The bones showed a disturbance in the normal arrangement of the trabeculae, and there was a slight enlargement of the shaft of the right and left fifth metacarpal bones. In the distal ends of the radius and ulna were punched-out areas similar to those found in the phalanges of the hands. The examination of the feet disclosed small punched-out cystic areas in the ends of the phalanges. These phalanges, however, did not reveal the absorption noted in the hands. The joints were not involved and there was no evidence of either periostitis or atrophy from disuse. There was also a definite change in the arrangement of the trabeculae. The metacarpal and metatarsal bones appeared to be normal with the exception of the left fifth metatarsal bone where several small punched-out areas were visible. The changes in the feet were similar to those in the hands but the condition was no so far advanced. The examination of the skull and of the chest was negative.

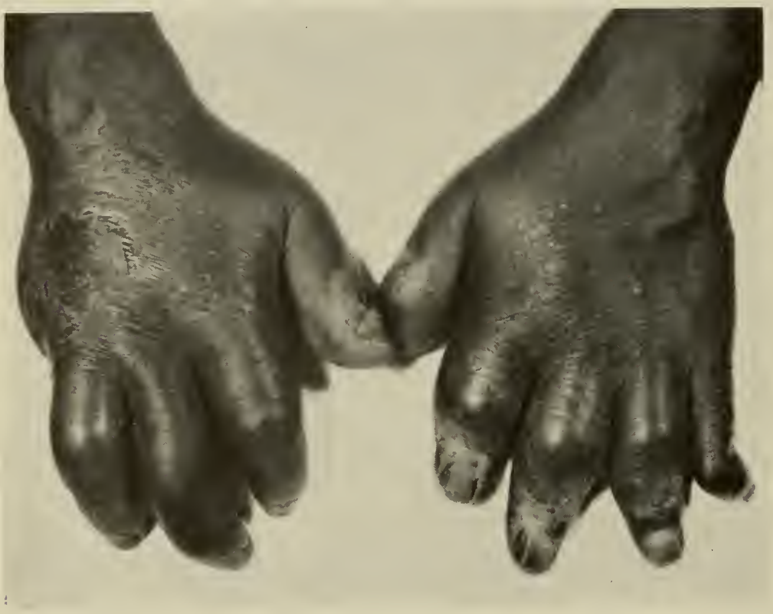

Fig. 2. Showing Swelling and Deformity

The blood Wassermann and spinal fluid tests were completely negative. Mild secondary anemia was present. The white blood cells numbered 3,500. Many sections stained for acid-fast bacilli were examined with negative results. Two guinea pigs inoculated with pieces of the bones and two with parts of the skin, remained negative. 10 mgm. of old tuberculin injected subcutaneously gave a slight reaction after 48 hours. The epidermis in some areas was definitely atrophic consisting of only a few rows of cells. In other areas the epidermis was very hypertrophic with marked hyperkeratosis. The infiltrate in many regions touched the basal layer and on occasion extended deep enough to invade the fatty tissue. Where the infiltrate was dense the various cells were arranged in a disorderly manner. A moderate number of giant cells were seen with large homogeneous centers and a row of nuclei about the periphery. The predominating type of cells was epitheloid. These were present in varying densities. The elements next in importance were mononuclear lymphocytes. Many dilated large thin-walled blood vessels lay in the subepidermal layer. Very noticeable areas of necrosis were seen in which the cell borders were indistinct with pale staining nuclei or areas which were rather homogeneous. In the dense infiltrate the elastic tissue was entirely missing and about the edges it was broader than normal and definitely basophilic.

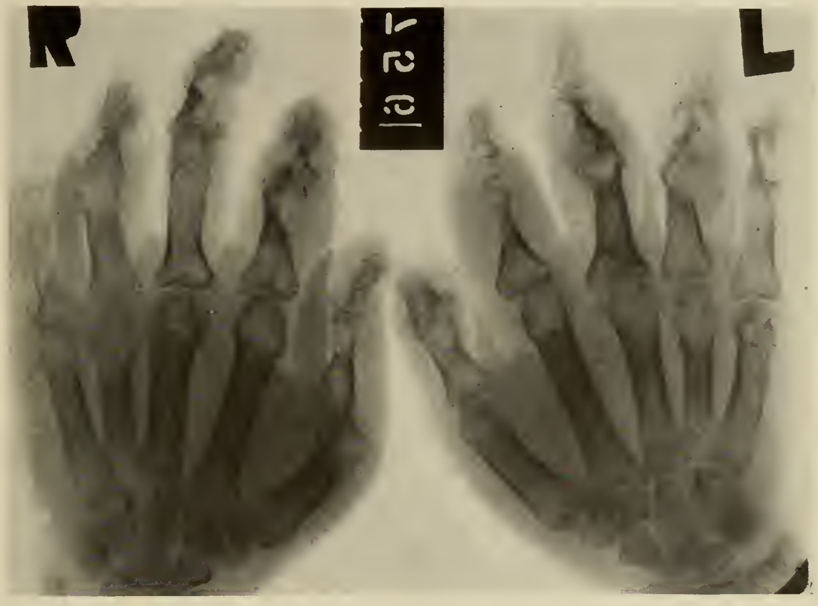

Fig. 3. Roentgenogram Showing Cyst-like Areas in the Phalanges

The right little finger was amputated with the head of the corresponding metacarpal. The wound healed by first intention. A section through the second phalanx of the right finger showed that most of the bone had been replaced by an infiltrate somewhat similar to that seen in the sections from the skin of the face, etc. In the soft tissues of the finger the infiltrate was less extensive involving tissue up to the basal layer. The inflammation in the bone differed from that found in the skin by the scarsity of giant cells. The small mononuclear lymphocytes were the predominating cells, and not epitheloids. Necrosis was slight and marked fibrosis was present. True tubercle formation was nowhere seen. The periostium could not be identified but the cartilage of the joint was intact in spite of the great destruction of bone. After the patient left the hospital he was given one and a half courses of antiluetic treatment consisting of sixteen intravenous injections of 0.4 gm. of arsphenamine and eight intramuscular injections of bismuth salicylate in oil, with no effect on the eruption. After this course of antiluetic treatment he was given Fowler's solution up to seven drops three times a day. Soon after he began taking Fowler's solution, he developed a mild ascites with febrile reaction. He was again admitted to the University Hospital. These symptoms rapidly disappeared, without the cause for them having been found. At this time the patient again reacted negatively to 10 mgm. of old tuberculin. He was once more put on Fowler's solution.

Comment:—In the literature we have been able to find only five cases of ostitis tuberculosa multiplex cystoides associated with true tuberculosis cutis: 1. Valenti's (8) case with lupus vulgaris (cited by R. Volk in Jadassohn's Handbuch); 2. Jüngling's (4, 5) second case with lupus vulgaris of the arm; 3. Weil's (9) case with lupus vulgaris; 4. Von Schmid's (10) case with tuberculous adenitis of eleven years' duration and with sinus formation for nine years, ostitis tuberculosa multiplex cystoides for two years, lupus of the face, and a positive Von Pirquet's test; 5. Mayard Heath's (5) mentioned by Jüngling, a female, age 31 years, with cervical adenitis and lupus of the face, and active pulmonary tuberculosis.

Our case cannot be considered sarcoid or a similar type of tuberculide, in spite of the lack of reaction to old tuberculin, and the inability to demonstrate tubercle bacilli, because of the destructiveness of the skin lesions. Secondly, the histology of sarcoid is lacking and marked definite necrosis is present. Kissmeyer (11) and Schaumann (12, 13) state that the latter is alone sufficient to rule out sarcoid or lupus pernio.

SUMMARY

1. Spina ventosa is a true tuberculous dactylis that occurs mostly in children and is characterized by caseation, sequestration, and sinus formation.

2. Ostitis tuberculosa multiplex cystoides is a type of modified tuberculosis of the bones affecting generally the small bones of the hands and feet of adults. It is usually associated with a cutaneous tuberculide namely sarcoid or lupus pernio, and shows a strong anergy to old tuberculin. Caseation and sequestration do not occur in this type of ostitis.

3. We have found in the literature, five cases of true tuberculosis cutis associated with ostitis tuberculosa multiplex cystoides and have added a case of tuberculosis verrucosa cutis in which these unusual bone changes were present.

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THE CLINICAL APPLICATION OF THE GROWTH HORMONE WITH REPORT OF A CASE[1]

By H. S. RUBINSTEIN, B.S., M.D.

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Since the discovery of the growth hormone (1) numerous methods for its purification have been devised in order to apply this endocrine substance to human use. The crude extract has been used by Evans and Long (1), Putnam, Benedict and Teel (2) and in the neuro-anatomical laboratory of the Department of Anatomy, University of Maryland (3), to produce excessive growth in lower animals. Refinements in technique by Evans have permitted the use of his extract in the human. Thus Engelbach (4) used this purified substance in rather large doses (up to 10 cc.) daily and succeeded in obtaining a 2.7 inch increase in height in a nine and a half year old child after nine months treatment. In the case to be reported the extract was furnished by the Squibb Research Laboratories and was prepared by them by a modification of the Van Dyke method (5). This preparation was found to be free from irritating matter and during the entire course of treatment produced no unfavorable reaction in the patient.

CASE REPORT

The patient, a female, age sixteen years was first seen on July 21, 1932, at which time she sought a remedy for her lack of growth.

Family History:—Her father is living and well at 41 years of age; mother living but suffers from a gastric ulcer. There are five children in the family: These follow:

1. The patient whose birth weight was three and a half pounds although she was a full term child.
2. A son, six and a half pounds at birth, now fourteen years old, normally built.
3. A son, six and a half pounds at birth, who died of erysipelas at the age of five weeks.
4. A son, eight month fetus, who died at birth.
5. A son, six and a half pounds at birth, who is living and well, of normal build at nine years of age.

The mother is thirty-three years of age and the father is forty-one years of age; they have been married seventeen years. There is no history of any familial diseases.

Past History:—The patient was a full term baby who weighed three and a half pounds at birth. Delivery was normal and she was breast fed until she was seven months old—thereafter she was fed with a bottle. At one year of age she weighed twelve pounds. She was then put on a full diet and given cod-liver oil, but vegetables were limited. At ten years she weighed only thirty-five pounds. She was believed, by her physician to be a case of under-nutrition and was, therefore, sent to a camp, where after five months, her weight increased to forty-five pounds. She maintained this weight for quite some time, but gradually began to gain until at sixteen years she weighed seventy-two pounds. Her height, however, failed to increase after the age of twelve.

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[1] From the Departments of Neuro-Anatomy and Medicine.

She sat up at eight months of age; she stood at one year and walked at twenty-eight months. Her first tooth appeared at eight months and at one year she had four teeth. She lost her deciduous teeth at seven and her secondary dentition occurred at the age of twelve. She began going to school at eight years of age and continued until she was fifteen at which time she was in the 7th grade. She got along quite well and liked school.

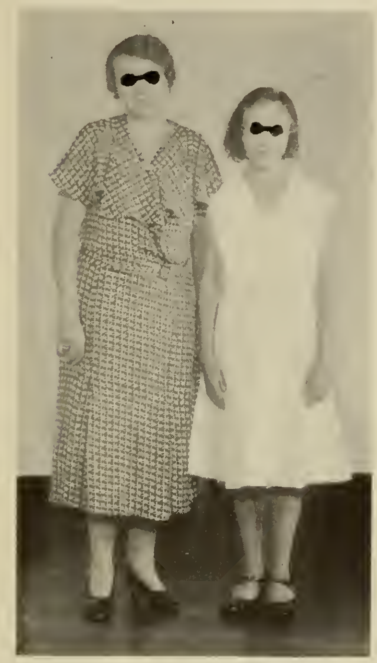

FIG. 1

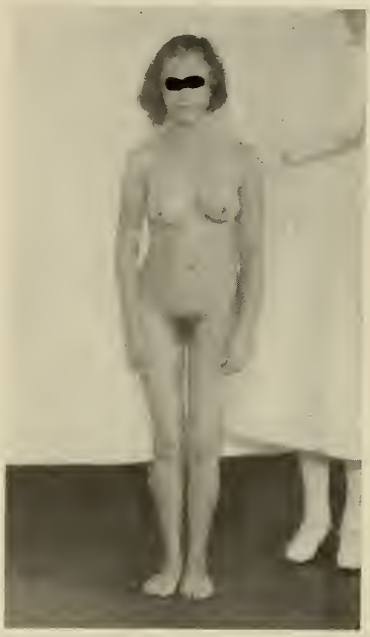

FIG. 2

FIG. 1. THE PATIENT (RIGHT) STANDING WITH HER MOTHER

FIG. 2. THE PATIENT SHOWING SMALL STATURE BUT WELL DEVELOPED SECONDARY SEX CHARACTERISTICS

Systems

Gastro-intestinal:—Her appetite has been fairly good at all times. Her bowels have been normal. She has one movement daily. There is neither nausea, vomiting, nor abdominal pains.

Cardio-respiratory:—There is no history of cough, of dyspnea, of hemoptysis, or of night sweats. At times she feels weak after walking several blocks; no edema; no chest pains.

Genito-urinary:—No nocturia; no hematuria; no frequency, no urgency; no polyuria although she drinks large quantities of water because she "thinks it is good for her."

Nervous System:—She has frontal headaches at times which are not present upon rising or after reading, but they occur upon prolonged walking. She is easily excited and "feels shaky." There has been no fainting or dizziness.

Menstrual History:—Menses began at fifteen and recur every 28 days. The flow lasts

3 days and is not associated with pain or any other disturbance. Her last menstrual period was July 12, 1932.

Habits:—She does housework. She has two girl friends, one 16 years and the other 17 years of age. Both are much larger than the patient.

Physical Examination:—Patient is a white female, well proportioned, but small in stature. Her size is that of an eleven-year-old child, but her facial expression is quite mature. Her height is 53½ inches; weight 66½ pounds; temperature 99°F.; pulse 88; respirations 20 and blood pressure 118/60; her measurements compared with the normal variations follow:

Sixteen-year old female, 7-21-32

	Normal	*Patient*
Upper half, inches	30.1–32.9	26½
Lower half, inches	30.1–32.9	27
Total height, inches	61.1–65.3	53½
Span, inches	61.3–65.9	54½
Head circ., inches	21.7	20
Chest circ., inches	30.1	26¼
Waist, inches	25	22¾
Hips, inches		26½
Trochanter, inches		28¾
Weight, pounds	99–122.8	66½

Her scalp shows a crop of hair which is of good quality and texture. There are no areas of alopecia. Her ears, eyes, nose show no gross defects; her mouth shows the mucous membrane to be of good color and the tonsillar fossae normal. The teeth are all secondary. There is a filling in the upper right bicuspid and the lower left second molar. Her upper right incisor is decayed. Her neck shows no masses; the thyroid gland is small; the trachea is in the mid-line and no bruit is discernible. Her chest shows no deformity; there is good expansion and her breasts are well developed. The heart is not enlarged; the mitral sound is normal; her second pulmonic sound is louder than her second aortic sound. Both of these are reduplicated. Retromanubrial dullness is not increased. Her lungs are resonant throughout; fremitus is normal; there are no friction rubs; no râles; and the expansion is good. Her abdomen is negative. The genitalia show a well developed crines pubis and well developed labia. Her extremities are small, but well proportioned. Her spine is negative. A neurological examination discloses no abnormal findings.

This led to the clinical impression of pituitary dwarfism due to inherent lack of anterior pituitary growth hormone.

Laboratory Findings:—Urine, blood count, Wassermann, phenolsulphonphthalein test within normal limits; blood sugar 88 mgm. per cent.

Glucose tolerance test disclosed the following blood sugar levels:

	mgm. per 100 cc. of serum
Fasting	73
½ hour	108
1 hour	103
2 hours	98
3 hours	82
4 hours	87

Her vital capacity was 950 cc. Her tuberculin test was positive after 48 hours to 0.1 mgm. of old tuberculin.

	mgm. per 100 cc. of serum
Non-protein nitrogen	26.0
Blood calcium	10.4
Blood phosphorus	5.0

Fluid intake averaged 2650 cc.
Fluid output averaged 1300 cc.

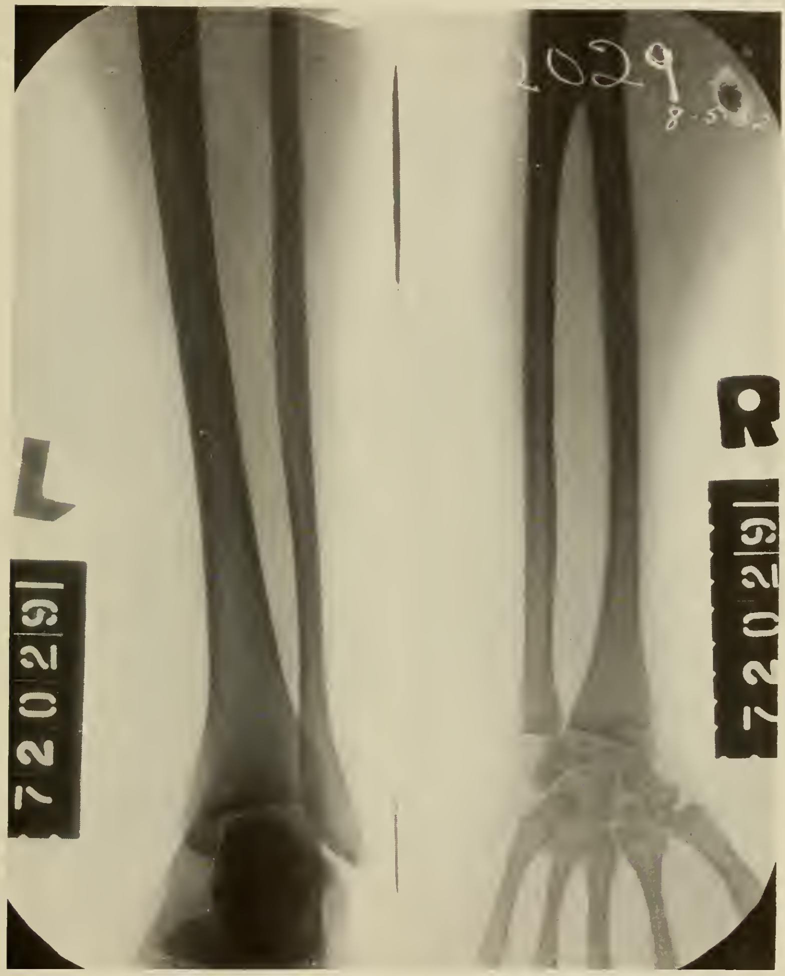

Fig. 3. X-Ray of Leg (Left) and Forearm and Wrist (Right) Showing Epiphysis Practically Fused in the Former but Still Unfused in the Radius and Ulna

On August 5, 1932, her X-ray report read as follows:

Chest:—Marked increase in root shadows and several small calcified lymph nodes visible. Lung fields clear. Diaphragm outline normal. No abnormality noted in the heart or great vessels. No pathological condition.

Skull:—Small cranium, bones of average thickness and density. Small sella, normal in outline. No evidence of intracranial pathology.

Right Forearm:—The bones are small, but are normally developed. No evidence of any abnormality in the development of the epiphyses.

Left Leg:—Nothing pathological. Complete fusion of all the epiphyses around the ankle joint.

On April 28, 1933, her X-ray report read as follows:

Chest:—Same as on August 5, 1932.

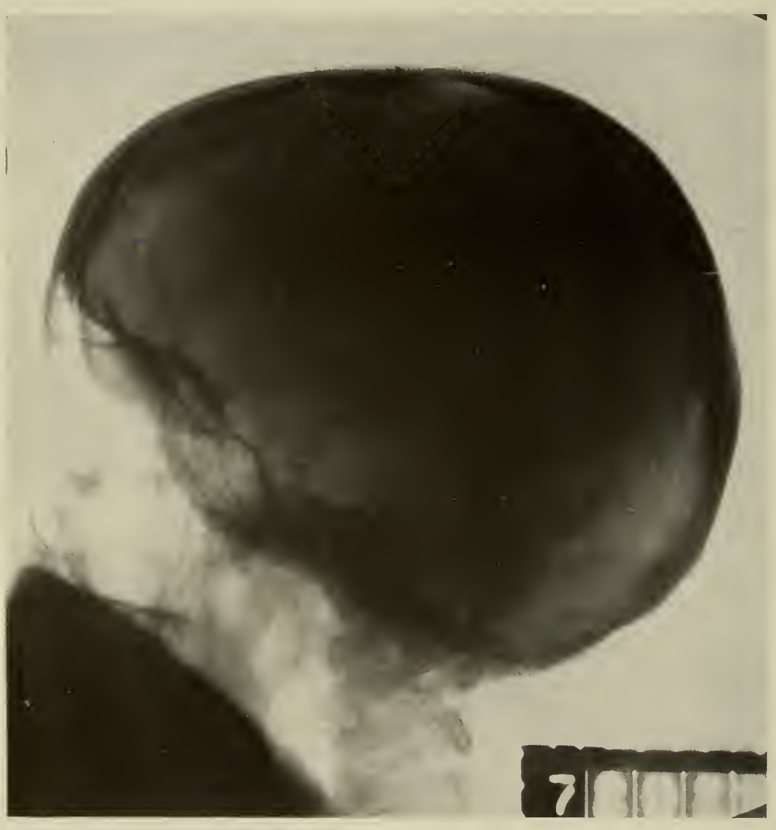

Fig. 4. X-ray of Skull—Lateral View—Showing Normal Sella Turcica

Skull:—Same as on August 5, 1932.

Right Forearm:—The epiphyses are more closely united than when previously examined.

Left Leg:—Same as August 5, 1932.

Her basal metabolism was plus 4.[2]

On September 9, 1932 when the patient measured 53½ inches in height, treatment was begun with growth hormone. This was administered intramuscularly every day except Sunday in a dosage beginning with 2 cc. and increasing to 5 cc. On September 19, 1932, 10 days after the beginning of treatment the patient measured 54 inches, a gain of ½ inch. On September 24th the patient's height was 54¼ inches. It was noticed that growth was always accompanied by frontal headache and menstrual disturbance. The latter was manifested by being late (in one instance 11 days late) lasting only one day and the flow quite scanty. From October 12, 1932, because of marked frontal headache and failure on the part of the patient to grow more, injections were stopped. These were resumed again, December 8th, 1932 and on December 25th it was noted that the patient's height was 54¼ inches. She remained at this height until January 16th, 1933 when injections were stopped. It was noted then that there was a slight recession in height which was not large enough to be measured. On February 3, 1933 the patient was 54⅜ inches in height. Injections of 5 cc. daily were begun without results so that by February 24th injections were stopped. During the months of February, March and April menses again became regular and well established.

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[2] The normal was obtained by interpolating the "Adult's Normals" p. 22 of "Instructions with Tables of Normal Consumption and Basal Metabolic Rate." Sanborn Co., Cambridge, Mass., 1931.

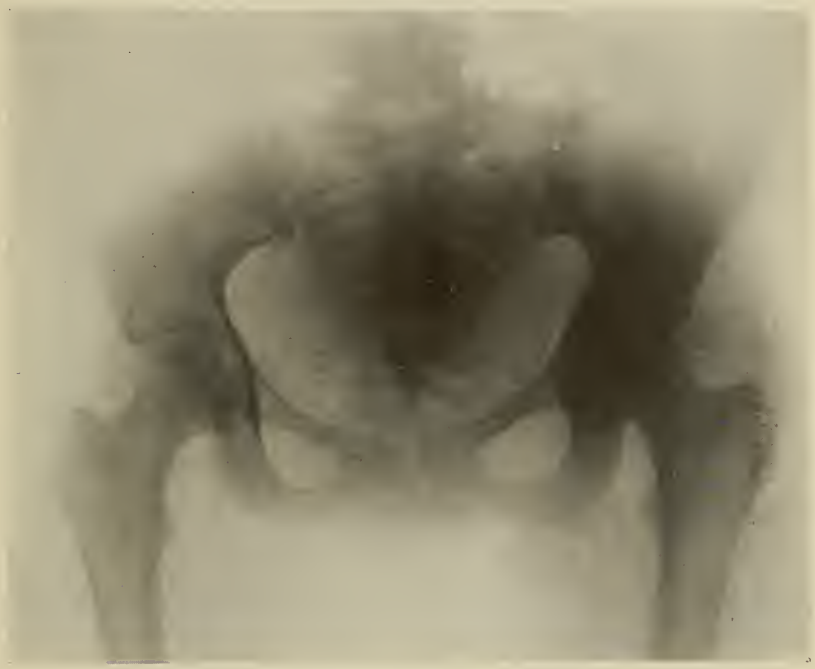

Fig. 5. X-ray of Pelvis—before Treatment

Since the patient failed to continue to respond to the growth hormone alone, on May 3rd, 1933 it was decided to see the effect of thyroid extract upon the growth hormone, so that the patient was put on thyroid, half a grain, 3 times a day by mouth. On May 17, 1933 injections of 3 cc. daily (of the growth hormone) were begun. At this time the patient was 54⅜ inches in height. That month she missed her menstrual period and on June 15th, 1933 measured 54 and ¾ inches in height. During this last month the patient has had frequent frontal headaches and since the treatment was first begun she has gained one and a quarter inches. This gain was the first growth since she was 12 years of age.

Discussion:—It appears from these data that we are dealing here with a case of growth hormone insufficiency. Although pituitary gland deficiencies are most commonly complex in nature, so that a patient will present sexual and statural defects together, there are many cases which do present a single hormonal deficiency. That this patient's sex function was normal may be noted from her statural measurements in which her extremities showed neither undue elongation nor shortening as compared to the rest of the body. Furthermore, her catamenial history as compared to her mother's seems also to be normal. Because of the fact that her epiphyses

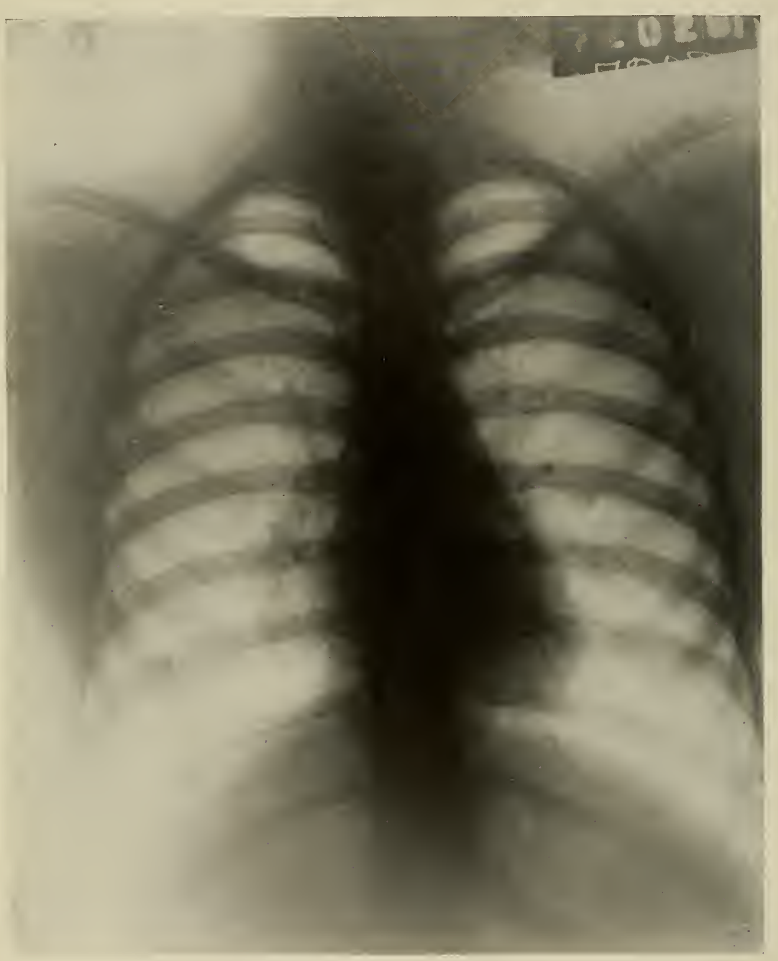

Fig. 6. X-ray of Chest

were almost completely united, any growth increase obtained by the administration of growth hormone was obviously limited. This stresses the importance of instituting treatment early. An important observation was the fact that the intermenstrual interval was prolonged by the extract used. This seems to indicate that the extract at this time contains a factor which influences the menstrual cycle. It may be argued that the phenomenon noted is merely added evidence of the antagonism which is believed by some to exist between the growth and sex hormones (6). But the fact that many girls have regular menstrual periods and still continue to grow leads one to assume that such antagonism is not the true cause of delayed menstruation in this case.

It has perhaps been noted that the patient failed to respond continuously to the administration of the growth hormone. It is believed by the author that in a measure the fault lay in changes which have occurred in the extract used. For example it has been found in this laboratory that inadequate refrigeration (7) and inadequate buffering (8) of extracts used have a deleterious effect on growth experiments carried out on the albino rat. The slight retrogression in height upon the cessation of administration of the extract cannot be explained at this time although it has been shown (9) that cessation of injection in rats after a positive weight increase had been obtained was followed for several days by a loss in some of this weight.

Finally, it was interesting to note that the administration of thyroid gland together with this extract led to a further increase in body height. It therefore appears that the growth hormone should be administered together with thyroid for maximal results.

SUMMARY

1. A case of pituitary insufficiency involving the growth hormone is described.
2. Definite growth was obtained in a patient who had not grown since the age of twelve, although treatment was not instituted until the patient was sixteen years of age when her epiphyses were almost completely closed.
3. The simultaneous administration of thyroid extract with the growth hormone seems to enhance the latter.

The author acknowledges his indebtedness to Dr. M. C. Pincoffs for offering the facilities of his department at the University Hospital in the study of this case. To the Squibb Research Laboratories and to Dr. J. M. Morrell of the Biological Laboratory of the Squibb Company, many thanks are due for the supply of the extract used in this case and for their coöperation. To Dr. Carl L. Davis, head of this Laboratory, the author is indebted for his continued interest and excellent advice.

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THE EFFECT OF THE GROWTH HORMONE UPON THE TAIL LENGTH-BODY LENGTH RATIO OF THE ALBINO RAT[1]

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In the course of experimental studies upon the effects of the growth hormone upon the brain (11) the opportunity for studying the effect of the growth hormone upon the tail length-body length ratio presented itself. This problem appeared interesting in view of the fact that animals (rats) experimentally stunted were shown to possess tails which were proportionately smaller than those of their controls (5). Would animals whose growth had been experimentally enhanced have their tails proportionately enlarged as compared to their controls?

In order to determine this, seventy-four animals (Mus norvegicus-albinus) were divided into seventeen groups so that each group contained a control animal, an animal which was to receive injections of meat extract, and one or two test rats. Only litter mate brothers or sisters were used as control animals. The test animals which were the smallest of each litter received daily (except Sunday) intraperitoneal injections of 2 cc. of an alkaline aqueous extract of the anterior lobe of fresh beef pituitary glands. 2 cc. of extract represented 1 gm. of fresh anterior lobe. All animals were kept in surroundings resembling that of previous studies (9, 10). The experiment was carried on for twenty-two weeks at the end of which time all animals were sacrificed.

Measurements were made by anesthetizing the rats and after laying the animal upon its back getting the maximum normal length by straightening its tail and pushing the snout towards the surface of the table. Body length was taken between the tip of the snout and the anus; tail length from the anus to the tip of the tail. The ratio was determined according to tail length/body length.

Results:—At the end of the experiment the ages of the animals varied between twelve and fifteen months so that they may all be considered adults. From Table I it may be noted that at the conclusion of the experiment the body lengths and tail lengths of the test animals exceeded those of their controls. That this gain is significant has already been shown in a previous communication (12). A comparison of the groups as shown in this table makes it appear that the tail length-body length ratio of the test males was diminished, since .82, the ratio for the male test animals, is quite a deviation from .85 and .86 the ratios for the two sets of male controls. The results for the females appear negative at a glance. When males and females are considered together the results at once appear negative. Table II, however, discloses the fact that the difference shown for the male rat in Table I is not significant. In Table II where the probable errors are taken into consideration it may be noted that the probable errors of the differences are larger than the differences themselves. This makes the critical ratios (difference/probable error of the difference) of all differences less than 3 and therefore not significant.

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[1] From the Neuro-Anatomical Laboratory of the Department of Anatomy.

TABLE I

Final Mean Lengths of All Groups and the Tail Length-Body Length Ratios for Males, Females and the Entire Series

	BODY LENGTH	TAIL LENGTH	TOTAL LENGTH	TAIL LENGTH/ BODY LENGTH RATIO	MEANS FOR ALL ANIMALS
	cm.	*cm.*	*cm.*	*per cent*	*per cent*
Control Animals:					
Male	21.89	18.78	40.67	.85	.88
Female	19.50	17.91	37.41	.91	
Meat Injected Animals:					
Male	21.63	18.58	40.21	.86	.875
Female	19.10	17.27	36.37	.90	
Experimental Animals:					
Male	23.06	19.04	42.10	.82	.86
Female	20.93	18.93	39.86	.90	

TABLE II

Mean Tail Length-Body Length Ratios for All Groups

	MEAN TAIL LENGTH-BODY LENGTH RATIO	DIFFERENCE FROM CONTROL	CRITICAL RACTIO
Males:			
Growth	.82 ±.0162	−.03 ±.017	1.76
Control	.85 ±.0060		
Meat	.86 ±.0086	+.01 ±.011	.91
Females:			
Growth	.90 ±.0075	−.01 ±.011	.91
Control	.91 ±.0078		
Meat	.90 ±.0087	−.01 ±.012	.83

Discussion:—It appears from these results that artificially increasing the total length of the white rat does not materially alter the tail length-body length ratio. The ratios of .85 for our male controls and .91 for our female controls are larger than the average ratio of .82 of Hatai's series but this is undoubtedly due to the variation of the strain of the animal. That Hatai's animals and those of this study are of the same species, however, seems to be indicated by the relatively shorter tail as compared to the body. This is true for the Norway rat (Mus norvegicus) and not true for the black rat (Mus rattus) (4). Where Hatai got definitely stunted rats, the normal ratio of .82 dropped to the significantly smaller ratio .75.

That the tail length-body length ratio can be experimentally altered has been demonstrated not only by Hatai but also by Bierens de Haan and Przibram (1), Przibram and Wiesner (8) and Przibram (6, 7). Through the work of these investigators it has been shown that the tail length can be relatively increased or decreased in proportion to the rest of the body in relation to changes in body temperature. Thus, tail length is relatively shortened if body temperature is decreased either through drugs or through lowering of environmental temperature (1). On the other hand the tail lengths of four week old albino rats were relatively increased if their body temperatures were raised above room temperature for ten days (8).

Hence it appears from the results of Przibram and his co-workers that the tail length-body length ratios are influenced by heat, increased temperature raising and decreased temperature lowering this ratio.

Where Hatai stunted growth by partial starvation, the tail lengths were affected more markedly than the body lengths so that the tail length-body length ratio was diminished. In his report Hatai does not attempt to explain this result. It is known that starvation leads to a lowering of metabolic processes with a subsequent diminution in body heat. May it not be, in the light of Przibram's work, that such a diminution in body metabolism accounts for the shortening of the tail? This, of course, can only be answered through further investigation.

In our own experiments where the body is increased in size the mechanism is evidently free from internal temperature changes since the tail length-body length ratio seems to remain practically unaltered. The result of this study differs from that of Donaldson's "Table 144" (2) which shows a relative increase in tail length as body length increases with a consequent increased ratio as the aminal grows. But as suggested by Donaldson (3) his data were collected some twenty years ago from a different series of animals and the possibility that different growth behavior exists must be maintained. Then again, Donaldson's figures are obtained from normally growing rats.

CONCLUSION

Experimentally increasing the total length of the white rat with growth hormone does not significantly alter the tail length-body length ratio. This stands in contrast to Hatai's work in which stunting growth led to animals with relatively shorter tails. The data herewith presented also differ from Donaldson's figures which show a relative increase in tail length for larger animals. This seems to indicate that adding growth hormone to normally growing animals does not lead to increased growth which is perfectly normal for the species.

The author wishes to express his thanks to Dr. Carl L. Davis, head of this Department, for so graciously offering the facilities for carrying out this research and for his helpful advice. Thanks are extended to Dr. Henry H. Donaldson for his excellent suggestions.

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THE IMPORTANCE OF BEAUMONT'S CONTRIBUTION TO GASTRO-ENTEROLOGY[1]

By JULIUS FRIEDENWALD, M.D., and SAMUEL MORRISON, M.D.

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It is now just a century since William Beaumont published his "Experiments and Observations on the Gastric Juice"—a work so fundamental, thorough and complete that its author has rightfully attained the preeminent title of the "Pioneer American Physiologist." With meager facilities, under unfavorable conditions and with inadequate apparatus but with an enthusiastic and tenacious desire for research and the keenest power of observation this devoted investigator was able to greatly advance our knowledge of the physiology of digestion and likewise pave the way for future progress.

As you know, Beaumont took advantage of an accident to Alexis St. Martin in whom a gastric fistula developed as the result of a gunshot wound which afforded an unusual opportunity for experimentation and the study of the functions of the normal stomach and its secretions under various conditions. He pursued these studies in an unusual spirit of scientific research with meticulous care and with an honest desire for the truth but without any preconceived ideas as to the final results.

Beaumont first undertook his experiments on Alexis St. Martin at Fort Mackinac in May 1825 nearly three years following the accident which was responsible for the formation of the gastric fistula.

The following month he was ordered to Fort Niagara and St. Martin accompanied him. He continued his investigations there until the fall. Soon, however, he was required to move his abode to Burlington and then to Plattsburgh where St. Martin disappeared in September 1825, escaping to Canada. After four years Beaumont succeeded in inducing Alexis to return to him (in June 1829) when he continued his experiments until March 1831 when St. Martin returned to Canada to visit his family.

In November of 1832 Alexis returned and Beaumont stationed at Plattsburgh and later in Washington began another series of experiments which continued until March 1833. The fourth series was performed from June to November 1833.

In summary, then, four series of investigations were recorded totalling 238 experiments in all.

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[1] Address delivered before the Osler Historical Society, Baltimore, Maryland, November 21, 1933.

The first series consisted of 4 experiments; the second of 56; the third of 116 and the fourth of 62.

The results of these investigations were published in a volume in 1833 entitled "Experiments and Observations of the Gastric Juice and the Physiology of Digestion." They are arranged in seven sections as follows:

Section I. Of Aliment
II. Of Hunger and Thirst
III. Of Satisfaction and Satiety
IV. Of Mastication, Insalivation and Deglutition
V. Of the Digestion of the Gastric Juice
VI. Of the Appearance of the Villous Coat and the Motions of the Stomach
VII. Of Chylification and Uses of the Bile and Pancreatic Juice.

This edition consisted of 1000 copies or perhaps more. A new and improved edition was published in 1847 which was corrected by Samuel Beaumont, a counsin of William. A German edition was issued in 1834 and Doctor Andrew Combe published an edition with notes and comments in 1838 in Scotland.

These investigations soon aroused much interest especially among the medical profession and it was not long before the work was most favorably heralded in medical publications both at home and abroad.

In the section on aliment, Beaumont concluded that a mixed diet seems necessary for man and that the quantity of food is probably more important in insuring health than its quality. The system requires much less than is generally supplied to it. The stomach can dispose of a definite quantity of food. If more is taken than the actual requirements, the residue becomes a source of irritation to the stomach and passes into the bowel in an undigested form producing a disturbance in the intestine. Dyspepsia, according to Beaumont, is due more often to over-eating and over-drinking than to any other cause.

A chapter is devoted to hunger and thirst. These sensations are fully described; previous views are discussed and an attempt is made to establish a theory in explanation of their occurrence based on the degree of distention of the vascular or glandular apparatus of the stomach.

In the chapter on mastication, insalivation and deglutition Beaumont calls attention to the importance of the saliva preliminary to digestion. "Mastication is absolutely necessary to healthy digestion." He states that if food "in large masses is introduced into the stomach, though the gastric juice may act upon its surface, chymification will proceed so slowly that other changes will be likely to occur in its substance before it will become completely dissolved. Besides the stomach will not retain undigested masses for a long time without causing great distress." As to deglutition it is important that this process should proceed slowly so that digestion can be maintained with comfort.

A highly interesting and valuable chapter is devoted to the digestion of the gastric juice. Chymification, according to Beaumont, is effected in the stomach. "It is the first stage," he writes, "of the conversion of food into blood; though in the ordinary course of proceeding as animals are constituted, some previous steps are necessary. After the aliment has been received into the stomach it is subjected to certain evolutions or motions propagated by the muscular fibres of that organ and is acted upon through the agency of some principle, which changes it from a heterogeneous mixture of various kinds of diet submitted to its action into a uniform homogeneous semi-fluid possessing properties distinct from the elements of which it is composed. The length of time consumed in the operation varies. It depends upon the quantity and quality of the ingestae, the healthy or diseased state of the stomach, etc. In the various experiments made the medium time may be calculated at about three and a half hours." He calls attention to the work of Spallanzani who established the theory of the chemical solution and showed that the chymification is produced as the result of the digestion by the gastric juice and confirmed these observations. He was convinced of the presence of free hydrochloric acid in the gastric juice and this conclusion was verified by the findings of Professor Dunglison of the University of Virginia to whom he submitted a sample of gastric secretion for examination and likewise later by Professor Silliman of Yale.

The gastric juice appears to be secreted from numberless glands, discharging their contents only when solicited to do so by the presence of food or by mechanical irritation. Beaumont described the gastric juice, when removed unmixed with other fluid, as a clear transparent fluid inodorous and perceptibly acid. It is readily diffusable in water, effervesces slightly with alkalies and is an effective solvent of food particles. It possesses the power of coagulating albumin to a high degree, is powerfully antiseptic and checks the putrefaction of meat. The gastric juice does not accumulate in the cavity of the stomach until food is introduced to excite its flow and stimulate its secretion for the immediate purpose of digestion. Only a definite proportion of food can be perfectly digested in a given quantity of gastric juice. When the juice becomes saturated it refuses to dissolve more and if an excess of nourishment has been consumed the residue as already mentioned remains in the stomach or passes into the bowel in an undigested state and becomes a source of nervous irritation, pain and disease. Derangement of the digestive organs or slight fever or fright may cause alteration in the appearance of the gastric juice, though the gastric secretion itself is probably invariably the same substance. General febrile irritation suspends the secretion and renders the inner coat of the stomach dry, red and irritable. Fear and anger check its secretion.

Beaumont notes, that the first effect of food in the stomach is one of irritation, exciting the discharge of the gastric juice and stimulating the muscular fibres of the stomach. The vermicular movements not only carry the ingestae into all parts of the stomach but likewise uniformly mix the food with the gastric juice until chymification is completed. Some stimulus seems necessary to continue the movements of the stomach following chymification in order to effect its discharge into the intestine.

In regard to exercise and rest during the process of digestion, Beaumont states that moderate exercise promotes healthy and rapid digestion.

In the next section, the appearance of the gastric mucosa is graphically portrayed during the various stages of digestion and the movements of the stomach carefully described. The final section presents an account of the functions of the bile and pancreatic juice.

Beaumont described in detail and with the greatest care each of his experiments exactly as it was originally recorded in his notes which cover 150 pages of his book.

The results of his observations form an important addition to his work. These are embodied in 51 conclusions, the most important of which are, "that digestion is facilitated by minuteness of division and tenderness of fibre and retarded by opposite qualities, that the quantity of food generally taken is more than the wants of the system require and that such excess if persevered in generally produces not only functional disturbance but disease of the coats of the stomach; that bulk as well as nutriment is necessary to the articles of diet; that oily food is difficult of digestion though it contains a large proportion of the nutrient principles; that the time required for the digestion of food is various, depending upon the quantity and quality of the food, state of the stomach, etc. but that the time ordinarily required for the disposal of a moderate meal of the fibrous part of meat with bread, etc., is from three to three and a half hours; that the natural temperature of the stomach is 100°F.; that the agent of chymification is the gastric juice; that it acts as a solvent of food and alters its properties; that it contains free muriatic acid and some other active principles; that it is never found free in the gastric cavity but is excited to discharge itself by the introduction of food or other irritants; that it coagulates albumin and afterwards dissolves the coagulae; that it checks the process of putrefaction; that it is capable of combining with a certain and fixed quantity of food and when more aliment is presented for its action than it will dissolve, disturbance of the stomach or indigestion will ensue; that it becomes intimately mixed and blended with the ingestae in the stomach by the motions of the stomach; that the appearance of the interior of the stomach in disease is essentially different from that of the healthy state; that the motions of the stomach produce a constant churning of its contents and admixture of food and gastric juice."

One cannot conclude a description of Beaumont's work without calling attention to his comprehensive study of the digestibility of various foods. A table is presented noting the time required for the natural digestion of various articles of diet in the stomach and their artificial digestion in vials, a study which is still held in the highest repute as a contribution of great importance in the field of dietetics.

While it has been maintained that Beaumont made no original discoveries he undoubtedly clarified definitely many important problems pertaining to gastric digestion concerning which existing information was doubtful and uncertain, and he was likewise able to shed considerable new light upon other problems which had been inadequately described.

Sir Andrew Combe states in his preface to the English edition of Beaumont's book that "the value of these experiments consists partly in the admirable opportunities for observation, which he enjoyed and partly in the candid and truth seeking spirit in which all his inquiries seem to have been conducted. Dr. Beaumont eagerly and zealously availed himself of his unusual advantages and it would be difficult to point out any observer who excels him in devotion to truth and freedom from trammels of theory and prejudice. Having no theory to support and no favorite point to establish, he tells plainly what he saw and leaves everyone to draw his own inferences; or when he lays down conclusions, he does so with a degree of modesty and fairness of which few perhaps in his circumstances would have been capable."

As the result of his observations Beaumont was able to formulate a complete and accurate description of the gastric juice with the conclusion that this secretion contained free hydrochloric acid as an active and important constituent.

Equally as valuable are his observations regarding the movements of the stomach occurring during the process of digestion and finally a highly important part of his labors was shown in his ability to refute many erroneous theories and conclusions which had crept into the literature on gastric physiology.

It may be said, without fear of exaggeration and with a considerable degree of pride that Doctor Beaumont's experiments and observations are outstanding and are among our most valuable and enduring contributions to the physiology of gastric digestion. His work has undoubtedly presented the impetus which has led to the remarkable development of gastroenterology still in evidence today.

It is therefore but a fitting tribute on the centennial of the publication of his work that we should celebrate his great medical achievement and do honor to the memory of the physician William Beaumont, the Pioneer American Physiologist.

ANNOUNCEMENT

UNIVERSITY OF MARYLAND, DIVISION OF MEDICAL EXTENSION

A COMBINED REVIEW COURSE FOR PHYSICIANS

June 4th to 22nd, 1934

During three weeks of June, 1934, the Division of Medical Extension of the University of Maryland will offer its eleventh annual review course for physicians. This is a single, intensive general course. It is designed primarily to give to the physician in general practice the opportunity of studying those methods of diagnosis and of treatment which are in current use in the University Clinics. By careful use of the short period of time available a wide range of subjects is briefly presented. The greater part of the course is devoted to general medicine, but surgery and the various specialties are also included.

Information:

Questions concerning the course may be addressed to the Dean of the Medical School, University of Maryland, Baltimore.

Requirements for Admission:

The applicant must be a registered physician in good standing. Preference will be given to physicians registered in Maryland.

Enrollment:

The course will be limited to twenty men. It is suggested that applications be made promptly as the course will be filled up in the order that applications are received. Address: Dean of the Medical School, University of Maryland, Baltimore.

Fees and Tuition:

A matriculation fee of $25.00 will be charged to all registrants from Maryland. For those coming from other States a charge of $50.00 will be made.

Registration and Matriculation:

Monday, June 4th, 1934, 8.30 A. M., northeast corner Lombard and Greene Streets, Baltimore.

Daily Schedule:

9.00–10.00—Lectures.
10.00–11.30—Ward Rounds.
11.30–12.30—Clinic.
12.30– 1.30—Lunch.

1.30– 2.30—Dispensary Clinic.
3.00– 4.30—Laboratory and Therapeutic Procedures, X-ray and Electrocardiography.

Lectures:

The morning lectures will deal with modern advances in diagnosis and treatment. The subjects will be chiefly from the field of general medicine and surgery with a few lectures devoted to the specialties.

Ward Rounds:

The class will be divided into groups for ward rounds and will visit the ward patients on the medical, surgical, and special services, in the University, Mercy and City Hospitals.

Clinics:

There will be a daily clinic in the Amphitheatre of the University Hospital. These clinics will be given by different departments.

Dispensary Clinics:

The class will be assigned in groups in rotation to the Dispensary Clinics for pediatrics, genito-urinary diseases, syphilis, and gastro-intestinal diseases.

Laboratory, Therapeutic Procedures, Roentgen Diagnosis, Electrocardiography:

In these afternoon periods instruction will be given in the laboratory methods of diagnosis. Modern functional tests such as those employed in diseases of the kidneys and of the liver will be demonstrated. The technique of, and the indications for the use of such procedures as transfusion, venesection, infusion, and spinal puncture will be taken up, and demonstrated when possible. There will be a number of periods devoted to X-ray diagnosis. Electrocardiography and the interpretation of electrocardiograms will be briefly presented.

BULLETIN

OF THE

SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND

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DR. NOBLE P. BARNES

The tragic death of Dr. Noble P. Barnes removes from the Alumni ranks of the University of Maryland one of the most colorful figures in this vicinity, and it may be added, the most useful and outstanding member from all points of view.

A man of the highest professional standing, of great breadth and culture, he was an ornament to the medical profession. Possessed of the most engaging manners and a pleasing personality, he quickly won his way into the hearts of everybody. His outstanding loyalty to the University was most marked. Almost single-handed he reorganized our association and put new life and vigor into its existence, and today we can boast of a flourishing organization largely through his efforts.

His passing is a distinct loss not only to his clientele but to his associates and the University as a whole. His love for his Alma Mater will ever be a shining example to Alumni in all parts of the country, as his last earthly act was in the service of the University of Maryland—the school he loved.

He was suddenly stricken while presiding at a meeting and dinner of the local association, dying a few days later. He literally gave his life to the upbuilding of the *alumni spirit* throughout the land. What a glorious and matchless death, paralleling the greatest heroes in the history of the world.

Green be the turf above thee,
Friend of my better days;
None knew thee but to love thee,
None knew thee but to praise.

A. W. VALENTINE.

610 N. Carolina Ave., S.E.,
Washington, D. C.

BOOK REVIEW

Food, Nutrition and Health, by E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A. Professor, and Associate, of Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland. Third Edition, 1933. Price $1.50.

In this book the authors' aim is to give a "non-technical account of the most important discoveries in the field of nutrition and their relation to nutrition in daily life . . . . to enable the reader to detect the misinformation now being widely disseminated by faddists and promoters of food . . . . and to afford an educational basis for understanding how best to spend money allotted for food in the family budget" . . . . in all of which they succeed splendidly.

That this book has been reprinted eight times, and has appeared in three editions, within eight years speaks well for both the public's approval of the material and the authors' interest in this subject. This third edition has been rewritten, although the chapter structure of the book is essentially the same. There are twenty-two short and concise chapters on Proteins, Carbohydrates, Vitamins, Mineral Elements in Nutrition, Life History in Relation to the Diet, The Dietary Properties of Foodstuffs, Coffee and Tea, The Diet and Preventative Dentistry, The Reducing and Gaining Diet, The Diet and Acidosis leading up to the final chapter on A System of Diet which Promotes Health. In these chapters vital and commonplace problems are discussed in a practical and constructive way. At the end of the book are appended adequate menu suggestions and tables showing the distribution of the various vitamins in foods of common usage. These latter tables should be of value in experimental as well as practical diet planning.

Although the book is written primarily for the layman and, as an authoritative book is of value to him in this day and age of quacks and faddists, the student will find it profitable to read because each chapter is an entity representing the condensation of a mass of literature on the particular subject, and always includes an application to the human problem.

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The names listed above are officers for the term beginning July 1, 1933, and ending June 30, 1934.

ITEMS

Dr. Charles A. Waters, Baltimore, Md., class of 1911, associate in roentgenology, Johns Hopkins University, is editor of the Year Book of Radiology.

Dr. Richard Speight Anderson, Rocky Mount, N. C., class of 1924, at one time resident surgeon in the University of Maryland Hospital and later on the staff of St. Mary's Hospital, Rochester, Minn., in an article on the Diagnosis and Treatment of Duodenal Ulcer (The Virginia Monthly, 1933, lx, 491) summarizes the subject as follows:

1. The diagnosis of duodenal ulcer should be attempted by a roentgenologist;
2. The treatment should be directed to the type of case;
3. Young individuals without obstruction, who have to work, should have operative treatment, viz.: excision of ulcer and gastroduodenostomy;
4. Never do a gastroenterostomy unless the patient has obstructive symptoms;
5. In those financially able to submit to prolonged treatment, medical treatment is the procedure of choice;
6. In long standing cases of chronic, hard, indurated ulcers, gastroenterostomy is the best procedure;
7. Avoid surgery of any kind in Jewish patients. These patients do better on a medical regime. Recurrences are prone to occur if surgery is practised;
8. Silent, bleeding ulcers should be explored;

9. A lesion on the posterior duodenal wall should be cauterized and should be turned in;
10. In cases of severe duodenitis retractive to medical treatment, gastroduodenostomy, according to Judd's technic, should be employed;
11. Patients who have had a Judd duodenostomy should be advised that, if future trouble necessitates an X-ray examination, the roentgenogram may show a deformity which resembles an ulcer

At the annual meeting of the Mental Hygiene Society of Maryland, held February 23, 1924, Dr. J. M. H. Rowland, Baltimore, Md., B. M. C., class of 1892, Dr. Maurice Pincoffs, Baltimore, Md., professor of medicine, University of Maryland, and Dr. Ross McC. Chapman, Towson, Md., professor of psychiatry, University of Maryland, were elected vice-presidents and Dr. Ralph P. Truitt, Baltimore, Md., class of 1910, executive secretary.

Dr. Max Feldman, Brooklyn, N. Y., B. M. C., class of 1901, has been elected to the American Board of Otolaryngology.

Dr. Leslie G. Taylor, Hudson, New York; B. M. C., class of 1895; is president of the University of Maryland Medical Alumni Association of New York State (exclusive of New York City); Dr. Herman Joseph Haberer, Utica, N. Y., P. & S., class of 1906, secretary; Dr. Alpha Raymond Morse, Oxford, N. Y., B. M. C., class of 1904, vice-president and Dr. Herman Ernest Wangler, Syracuse, N. Y., class of 1921, treasurer.

Dr. Leonce J. Kosminsky, Texarkana, Ark., class of 1906, is president of the Arkansas Medical Society. The following remarks concerning him appeared in the Journal of the Arkansas Medical Society in the July, 1933, number.

> Dr. Leonce J. Kosminsky has crowded impressive achievement into his years as a practising physician, which began in 1906 in Texarkana, his birth place. Along with his extensive professional work, he has taught medicine and surgery, and has given energetic service to numerous medical, civic and fraternal organizations. During the World War he served overseas as a captain in the medical corps of the United States Army.
>
> To all this activity, Dr. Kosminsky brought a thorough scholastic training, sound judgment, and a good-humored personality. Thus equipped, the results of his efforts have been to win for him a warm regard in Arkansas and northwest Texas, and many professional honors.
>
> Dr. Kosminsky's education began in the schools of Texarkana. From thence, he went to the University of Arkansas, and then to the University of Paris. Graduating from that institution, he next attended Northwestern University in Chicago, where he was graduated in pharmacy. Nine years later, he entered the medical department of the University of Maryland.
>
> In 1910, Dr. Kosminsky was a member of the U. S. Pharmacopœia revision committee. Later, he was professor of histology and bacteriology in the College of Physicians and Surgeons, Little Rock. He served as health officer of Texarkana four years and of Miller County for twelve years. He has served as president and secretary of the Miller County Medical Society.
>
> The people like Dr. Kosminsky as a man, trust him as a leader, and revere him as a physician.

Dr. Aloysius W. Valentine, Washington, D. C., class of 1904 writes under date of November 24, 1933: The Medical Branch of the University of Maryland Alumni located in this city held a well attended meeting at the University Club. Among the distinguished guests were Dean J. M. H. Rowland, Colonel N. T. Kirk, U. S. Army and Surgeon General Rupert Blue, United States Public Health Service, retired, all of whom are alumni of the University. The gathering was a very enthusiastic one. Several officers of the College Park Branch gave very instructive talks which helped lots in creating a better understanding between the graduates of the several divisions of the University.

Mrs. Margaret Kenure, 29 Ocean Ave., New London, Conn. writes: My son Dr. James T. Kenure, class of 1920, has been missing for over a year. He was on his way home from Honolulu, where he was a Doctor in the Territorial Hospital. The last I heard from him was from Chicago, when he wrote that he expected to arrive home in a few days. Every effort has been made to find him but to no avail. The Medical Alumni Association extends to Mrs. Kenure its deepest sympathy and trusts that the mystery of Dr. Kenure's disappearance will soon be solved.

Dr. Albert E. Goldstein, Baltimore, Md., P. & S., class of 1912, has been elected president of the Mid-Atlantic Urological Society.

Dr. Charles E. Gill, class of 1927, of the Massachusetts Department of Public Health, Boston, Mass., writes under date of February 12, 1934: The arrival of the current "Bulletin" prompted me to write the enclosed notes about the below mentioned alumni whom I have met or learned about recently.

This news will be of interest to many of your readers and will possibly prompt other alumni to advise you of others whose present situation may not be generally known.

May I remind you that Dr. Edson W. Glidden, class of 1907, superintendent of the recently opened Worcester County Sanatorium, West Boylston, Mass., has not received the Bulletin for several years. Please place his name on the mailing list, as well as any others here listed who may have been inadvertently omitted.

Will you not feel free to call upon me for any assistance that I may be able to render the BULLETIN?

Glidden, Dr. Edson W., class of 1907, superintendent of the Worcester County Sanatorium, West Boylston, Mass.;

Davidson, Dr. W. B., class of 1917, specializing in tuberculosis, 36 Pleasant St., Worcester, Mass.; and roentgenologist to the Belmont Hospital, Worcester, Mass.;

Stetson, Dr. Halbert G., P. & S., class of 1895, past president (1932–33) of the Massachusetts Medical Society; practising surgery at 39 Federal St., Greenfield, Mass.;

Moran, Dr. John A., class of 1927, associated with Dr. Stetson;

Fullerton, Dr. W. W., P. & S., class of 1895, engaged in general practice at 106 Main St., Brockton, Mass. and school physician in Brockton Public Schools;
Mather, Dr. John A., P. & S., class of 1902, practice limited to roentgenology, 58 Federal St., Greenfield, Mass.;
Hayes, Dr. Justin E., P. & S., class of 1904, engaged in general practice, 16 Center St., Northampton, Mass.;
Kilgus, Dr. J. F., Jr., class of 1930, engaged in general practice at Cheshire, Conn.;
Talbot, Dr. Henry P., class of 1927, associated with the Connecticut Department of Health, Hertford, Conn.;
Ledbury, Dr. John W., Jr., B.M.C., class of 1905, engaged in general practice and chairman of the local board of health, Uxbridge, Mass.;
Doonan, Dr. Henry E., B.M.C., class of 1908, member American College of Surgeons, practices surgery in South Hadley Falls, Mass.;
Gordon, Dr. Walter C., class of 1907, practice limited to obstetrics, 118 Princeton Ave., Providence, R. I.;
Doran, Dr. John M., B.M.C., class of 1907, engaged in general practice, 690 Broadway, Chelsea, Mass.; chief of staff, Chelsea Memorial Hospital;
Seabold, Dr. W. M., class of 1931, since October, 1933, member of the resident staff of the Children's Hospital, 300 Longwood Ave., Boston, Mass.;
Fuller, Dr. A. H., B.M.C., class of 1906, engaged in general practice at West Upton, Mass.;
Miles, Dr. Charles G., P. & S., class of 1908, engaged in general practice, 23 Main St., Brockton, Mass., chairman of local board of Health and member of Massachusetts Legislature;
Schwartz, Dr. Paul M., class of 1933, on resident staff of the Wesson Memorial Hospital, Springfield, Mass.;
Schiff, Dr. Joseph, class of 1933, on resident staff of the Wesson Memorial Hospital, Springfield, Mass.;
Schiff, Dr. Hyman, class of 1933, on resident staff of the Wesson Memorial Hospital, Springfield, Mass.

The University of Maryland Medical Alumni Association held its annual card party, Wednesday, January 17, 1934, at the Lord Baltimore Hotel. Considering the depression, the affair was well attended and those present had a glorious time. Such get-togethers as this go a long way towards furthering good fellowship among our alumni. Dr. John Evans was chairman of the committee on arrangements. The other members of the committee were: Drs. W. Houston Toulson, Charles R. Foutz, Kenneth B. Boyd, D. J. Passagno, T. B. Aycock, Frank K. Morris, Alfred T. Gundry and Charles Bagley, Jr.

Dr. R. Sumter Griffith, Waynesboro, Va., P. & S., class of 1886, has delivered the same mother of seven children and each of the siblings weighed more than 12 pounds at birth. One, a boy, weighed 18½ pounds down weight.

Dr. James Calvin Hurst, Roanoke, Va., P. & S., class of 1885, requests that his class-mates Drs. Royall and Campbell will please communicate with him.

Dr. Salvatore Demarco, Baltimore, Md., class of 1900, has recently returned from a trip to the West Indies and the Northern coast of South America.

Dr. John M. Armstrong, St. Paul, Minn., writes to Dr. Randolph Winslow, under date of January 12, 1934, you might be interested to know that our Ramsey County Medical Society Library possesses a diploma of one Dr. George Thompson, a graduate of the University of Maryland in 1817. We also have five of his lecture tickets similar to those pictured on page 184 of the April, 1933, Bulletin. These are signed by Drs. Davidge, Potter, DeButts, Hall and Gibson. I do not find Thompson's name as a graduate of the Medical School of the University of Maryland. I presume your records for the year 1817 are incomplete.

Dr. George W. Hemmeter, Baltimore, Md., class of 1901, dean of the corps of health officers in the Baltimore City Health Department, was promoted on December 6, 1933, to the position of full time medical health officer. He is the second physician to be appointed to this classification and follows closely the example of Dr. Anthony L. Rettaliata, class of 1899. Dr. Hemmeter received his early schooling in Baltimore and obtained his medical degree from the University of Maryland in 1901, and was awarded the gold medal for the highest scholastic standing in the graduating class. For a number of years he was instructor and demonstrator in the physiological laboratory of the University of Maryland and a pristine professor of physiology in the now extinct Women's Medical College of Baltimore. Dr. Hemmeter was appointed health warden in the City Health Department in 1904, and has served the department continuously since that time, in more recent years as school medical examiner and investigator in communicable diseases.

Dr. Huntingdon Williams, commissioner of health of Baltimore, has been appointed professor of hygiene and public health in the School of Medicine, University of Maryland.

Dr. John Roberts Phillips, class of 1927, formerly resident surgeon at the University of Maryland Hospital and more recently of the Mayo Clinic, Rochester, Minn. has announced the opening of offices at Houston, Tex. He will limit his practice to general surgery.

Dr. Frank S. Lynn, Baltimore, Md., class of 1907, has been elected vice-president of the Baltimore City Medical Society. Dr. Charles Emil Brack, Baltimore, Md., P. & S., class of 1895, treasurer; Dr. Julius Friedenwald, Baltimore, Md., P. & S., class of 1890, a member of the Board of Censors, Dr. Charles Bagley, Jr., Baltimore, Md., class of 1904, a member of the honor committee and Dr. Edward P. Smith, Baltimore, Md., P. & S., class of 1912 and Dr. Maurice Pincoffs, professor of medicine, University of Maryland, members to the House of Delegates.

WEDDING

Dr. Jack Sarnoff, Astoria, Long Island, N. Y., class of 1925, was married September 4, 1930, to Miss Dora C. Watson. Mrs. Sarnoff was night superintendent of St. Johns Hospital, Long Island City before her marriage to Dr. Sarnoff. He is connected with the nose and throat division of St. Johns Hospital. They reside at 23–30 Newton Ave., Astoria, Long Island.

DEATHS

Dr. Noble Price Barnes, Washington, D. C., B. M. C., class of 1893; fellow of the American College of Physicians; formerly associate professor of materia medica and therapeutics in the George Washington University School of Medicine; for 20 years chairman of the council of the American Therapeutic Society; professor of pediatrics in the National University (1898); organizer of the Washington Medical Society and its president in 1897; one of the original members and organizers of the American Therapeutic Society in 1900; one of the organizers of the Medical Society Eastern Dispensary and Casualty Hospital; fellow of the Southern Medical Association, of the Maryland, Virginia and District of Columbia Medical Association, of the University of Maryland Medical Alumni Association and of the George Washington University Medical Association, and of the District of Columbia Historical Society; aged 62; died, November 26, 1933, of cerebral hemorrhage. Dr. Barnes was born in Killbuck, Ohio, and received his early medical training at Ohio University. Later he was graduated from the Baltimore Medical College and was admitted to practice in the District of Columbia in 1894. He was a son of the late Dr. Enos P. Barnes. Dr. John M. Barnes, of Buffalo, N. Y., is a son.

Dr. George Smith Condit, Warren, Pa.; class of 1910; member of the Radiological Society of North America; served during the World War; aged 46; died, December 10, 1933, of a lingering illness. Dr. Condit was born in Mannington, West Virginia, on January 27, 1887 and was the son of John and Catherine Condit. He received his elementary education in the Fairmont Normal School and Randolph-Macon Academy in Front Royal, Virginia. He received his medical degree from the University of Maryland, and later took a post-graduate course at the Johns Hopkins University. Dr. Condit began the practice of medicine at Mannington, W. Va. He later moved to Tidioute, where he practised for several years. He settled in Warren, in 1914, since which time he was one of its leading physicians. Dr. Condit served as a First Lieutenant in the Medical Corps of the United States Army during the World War. After a brief period of service in this country, he was sent overseas where he saw active service with the British Army in Northern France. While on duty with these troops, he was gassed and also was wounded by a bomb. He was honorably discharged on December 24, 1918, as partially incapacitated.

Dr. Joseph Russell Taylor, Harrisburg, Pa.; class of 1919; served during the World War; aged 39; died, January 7, 1934, of cardiac disease.

Dr. Vernon Llewellyn Oler, Calumet, Mich.; class of 1911; nose and throat specialist; a native Baltimorean and until recently a resident of Billings, Mont.; served during the World War; aged 47; died, November 16, 1933, of cardiac disease. He is survived by his wife, the former Gertrude Richardson, of Bedford, Mass. and two children, a son and a daughter.

Dr. Herbert Henry Williams, Mohawk, N. Y.; B. M. C., class of 1911; served during the World War; aged 50; died, October 15, 1933.

Dr. William M. Lester, State Park, S. C.; class of 1887; formerly member of the state board of health; aged 69; died, October 16, 1933, of esophageal diverticulum and carcinoma of the tongue.

Dr. James H. Kennedy, Aberdeen, Md.; P. & S., class of 1874; aged 85; died, October 26, 1933, of arteriosclerosis and acute prostatitis.

Dr. Eugene Douglass, Baltimore, Md.; class of 1889; aged 73; died, December 22, 1933.

Dr. Paul Whitehurst Green, Retreat, Pa.; class of 1900; member of the Associated Anesthetists of the United States and Canada; medical superintendent of the Retreat Home and Hospital for Chronic Diseases; aged 53; died, October 29, 1933, of chronic myocarditis.

Dr. John C. Twitty, Rutherfordton, N. C.; B. M. C., class of 1892; for many years county health officer; aged 64; died, November 6, 1933.

Dr. Benjamin Franklin Cox, Palmersville, N. C.; P. & S., class of 1886; aged 83; died, January 4, 1934, of cardiac disease.

Dr. Frank Webster Keating, Owings Mills, Md.; class of 1896; superintendent of Rosewood State Training School for 37 years; past president of the Association of Medical Officers of the American Institutions for the Feeble Minded, now known as the American Associations on Mental Deficiency; member of the National Association for the Study of Epilepsy and of the Maryland Psychiatric Society; past president of the Medical Alumni Association of the University of Maryland; aged 64; died, February 18, 1934, of acute cardiac dilatation. He was born in Centreville, Md., February 20, 1870, and was a son of the late James and Frances Keating. He received his early training at St. Paul's Parish School. Under his guidance the Rosewood School has been developed into a model institution for the handling of the feeble minded. He was an executive of the highest type. Those who knew him held him in the highest regard. The State of Maryland has lost an efficient official and the University of Maryland a loyal alumnus.

DR. WALTER B. KIRK, Darlington, Md.; class of 1893; aged 66; died, February 18, 1934.

DR. WENTWORTH DARCY VEDDER, Pottstown, Pa.; P. & S., class of 1880; aged 75; died, December 22, 1933.

DR. GORDON WILLIAM SCHNEIDER, New York, N. Y.; B. M. C., class of 1913; aged 45; died, December 13, 1933, of uremia & chronic nephritis.

DR. JAMES BATES BENNETT, Baltimore, Md., B. M. C., class of 1889; aged 66; died, January 21, 1934. He was the son of Captain Richard A. Bennett and Eliza Bates.

DR. CHARLES BARTLES SMITH, Washington, N. J.; P. & S., class of 1891; formerly mayor of Washington and member of the board of education; past president of the Warren County Medical Society; aged 66; died, December 19, 1933, of chronic nephritis, cerebral embolism and bronchopneumonia.

DR. LEON ASHLEY PEEK, West Palm Beach, Fla.; P. & S., class of 1897; Fellow of the American College of Surgeons; past president of the Palm Beach County Medical Society; served during the World War; aged 58; died, January 5, 1934, of cardiorenal disease.

DR. ARCHIBALD E. BEATON, Boston, Mass.; B. M. C., class of 1896; aged 66; died, November 23, 1933, of coronary thrombosis.

DR. AUBREY HORATIO STAPLES, Oakland, Calif.; B. M. C., class of 1896; aged 59; died, October 14, 1933.

DR. JOHN HENRY GROSHANS, Baltimore, Md.; class of 1894; aged 63; died, January 2, 1934; of cardiac disease.

DR. JOSEPH THOMAS POOCK, Hoboken, N. J.; B. M. C., class of 1890; aged 73; died, November 13, 1933.

DR. WILLIAM CALVIN STEELE, Mount Olive, N. C.; class of 1891; president of the Wayne County Medical Society; aged 66; died, November 14, 1933, of cerebral hemorrhage.

DR. CHARLES VICTOR L. HARBAUGH, Lapaz, Ind.; class of 1889; aged 72; died, December 9, 1933, of pneumonia.

DR. MILTON EDWARD GREGG, Mottville, N. Y.; B. M. C., class of 1896; served during the World War; aged 63; died, December 13, 1933, of injuries received when he was struck by an automobile. He was for years president of the University of Maryland Alumni Association of New York State (exclusive of New York City), was popular with his colleagues and was greatly beloved by his clientile and friends.

DR. EMORY WILLIS PEERY, West Palm Beach, Fla.; class of 1891; aged 67; died, December 4, 1933, of cerebral arteriosclerosis.

DR. WILLIAM S. BOOZE, Annapolis, Md.; P. & S., class of 1879; aged 70; died, December 6, 1933, of cardiac disease.

DR. MACTIER WARFIELD, Baltimore, Md.; class of 1884; aged 75; died, November 2, 1933, of carcinoma.

DR. WILLIAM C. BILBRO, Nashville, Tenn.; class of 1884; aged 70; died, November 28, 1933.

DR. CLAUDE A. ADAMS, Durham, N. C.; P. & S., class of 1892; aged 62; died, November 8, 1933, of carcinoma of the pancreas.

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Ruth Lee Briscoe

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SPRING ACTIVITIES

The Board of Regents of the University

The President, and the Board of Directors of the Alumni Association together with the Dean and Medical Council of the Medical School of the University of Maryland, cordially invite you to attend these activities.

PROGRAM

May 31st, 1934

9:00 A.M.—12:00 Noon—Registration at the Central Building of the Medical School. Inspection of Laboratories.

12:00 Noon—Complimentary luncheon, First floor, New University Hospital.

1:00 P.M.—Annual meeting of the Medical Alumni Association, Chemical Amphitheatre.

2:00 P.M.—Surgical Clinic by Dr. Arthur H. Hawkins, Cumberland, Md.
Medical clinic by Dr. Fred H. Heise, Trudeau Sanatorium, Saranac Lake, N. Y.

4:00–7:00 P.M.—Intermission.

7:00 P.M.—Annual Banquet, Lord Baltimore Hotel.

GUESTS OF HONOR

R. A. Pearson
President of the University of Maryland
His Excellency, The Honorable Albert C. Ritchie
Governor of Maryland
The Honorable Howard W. Jackson
Mayor of Baltimore
George M. Shriver
Chairman Board of Regents, University of Maryland
The Honorable Millard E. Tydings
Member of the United States Senate
The Honorable William P. Cole, Jr.
Member of the House of Representatives
E. Starr Judd, M.D.
Professor of Surgery, University of Minnesota
Randolph Winslow, M.D., LL.D.
Emeritus Professor of Surgery, University of Maryland
Leonard E. Neale, M.D.
Emeritus Professor of Obstetrics, University of Maryland
Graduates of 1934 School of Medicine, University of Maryland

SPEAKERS

HIS EXCELLENCY, THE HONORABLE ALBERT C. RITCHIE
Governor of Maryland
THE HONORABLE HOWARD W. JACKSON
Mayor of Baltimore
R. A. PEARSON
President of the University of Maryland
E. STARR JUDD, M.D.
Professor of Surgery, University of Minnesota, Rochester, Minn.

JUNE 2ND, 1934

3:30 P.M.—Commencement Exercises, Ritchie Colosseum, College Park, Md.

The following classes have definitely expressed their intention to hold a reunion this year:

Class of 1929—Dr. Geo. H. Yeager, Medical Arts Bldg., Baltimore, Md.
Class of 1924—Dr. Kenneth B. Boyd, 104 W. Madison St., Baltimore, Md.
Class of 1919—Dr. Cyrus F. Horine, 817 Park Ave., Baltimore, Md.
Class of 1914—Dr. C. C. Habliston, 104 W. Madison St., Baltimore, Md.
Class of 1909—Dr. H. M. Robinson, 106 E. Chase St., Baltimore, Md.
Class of 1904—U. of M., Dr. Chas. Bagley, Jr., Latrobe Apts., Baltimore, Md.
P. & S., Dr. Andrew C. Gillis, 1033 N. Calvert St., Baltimore, Md.
B. M. C., Dr. Emil Novak, 26 E. Preston St., Baltimore, Md.

NOTE: The reunions will include the graduates from the College of Physicians and Surgeons, University of Maryland and the Baltimore Medical College. Any other classes desiring to hold a reunion will please get in touch with the Alumni office, 519 West Lombard Street, Baltimore, Maryland, and we shall be pleased to help in every possible way to make the affair a success.

Secretary of the Medical Alumni Association:

Kindly send ...... ticket .. for the Alumni Banquet of the Medical Alumni Association, University of Maryland, to be held at the Lord Baltimore Hotel, on Thursday evening, May 31st, 1934 at 7 P.M.

will
I *or* be present for the Luncheon.
will not

Enclosed please find subscription at $4.00 per ticket.

Name...

Address..

(*Detach and mail to:* MEDICAL ALUMNI ASSOCIATION,
519 W. Lombard St., Baltimore, Md.)

Programs may be obtained at the time of registration.

BULLETIN
OF THE
University of Maryland School of Medicine *and* College of Physicians and Surgeons

Successor to The Hospital Bulletin of the University of Maryland,
Baltimore Medical College News, and the Journal of the
Alumni Association of the College of
Physicians and Surgeons

1807-1856-1920

Annual Announcement
Session 1934-35

VOLUME XVIII, NO. 5
MAY, 1934

CALENDAR, 1934–35

SCHOOL OF MEDICINE

FIRST SEMESTER

1934		
September 21	Friday	*Registration for first-and second-year students.
September 22	Saturday	*Registration for all other students.
September 24	Monday	Instruction begins with the first scheduled period.
November 29	Thursday	Thanksgiving Day. Holiday.
December 22	Saturday	Christmas recess begins after the last scheduled period.
1935		
January 7	Monday	Instruction resumed with the first scheduled period.
January 26	Saturday	First Semester ends after the last scheduled period.

SECOND SEMESTER

January 28	Monday	*Registration for first- and second-year students.
January 29	Tuesday	*Registration for all other students.
January 29	Tuesday	Instruction begins with the first scheduled period for first- and second-year students.
January 30	Wednesday	Instruction begins with the first scheduled period for all other students.
February 22	Friday	Washington's Birthday. Holiday.
April 18	Thursday	Easter recess begins after the last scheduled period.
April 23	Tuesday	Instruction resumed with the first scheduled period.
June 1	Saturday	Commencement.

* A student who neglects or fails to register prior to or within the day or days specified for his or her school will be called upon to pay a fine of five dollars ($5.00). The last day of registration with fine added to regular fees is Saturday at noon of the week in which instruction begins following the specified registration period. (This rule may be waived only upon the written recommendation of the dean.)

* The offices of the registrar and comptroller are open daily, not including Saturday, from 9:00 a. m. to 5:00 p. m., and on Saturday from 9:00 a. m. to 12:30 p. m., with the following exceptions: Monday, September 10, 1934, until 8:00 p. m.; Saturday, September 22, 1934, until 5:00 p. m.; and on Monday, January 28, 1935, until 8:00 p. m.

Advance registration is encouraged.

ORGANIZATION

THE UNIVERSITY OF MARYLAND

Control of the University of Maryland is vested in a Board of nine Regents, appointed by the Governor and confirmed by the Senate for terms of nine years each. The general administration of the University is vested in the President. The University Council is an advisory body, composed of the President, the Vice-President, the Director of the Agricultural Experiment Station, the Director of the Extension Service, and the Deans. The University Council acts upon all matters having relation to the University as a whole or to cooperative work between the constituent groups. Each school has its own Faculty Council, composed of the Dean and members of its Faculty; each Faculty Council controls the internal affairs of the group it represents.

The University has the following educational organization:

The College of Agriculture,
The College of Engineering,
The College of Arts and Sciences,
The School of Medicine,
The School of Law,
The School of Dentistry,
The School of Pharmacy,
The College of Education,
The College of Home Economics,
The Graduate School,
The Summer School,
The Department of Physical Education and Recreation.

The Schools of Medicine, Law, Dentistry and Pharmacy are located in Baltimore; the others in College Park, Maryland.

BOARD OF REGENTS OF THE UNIVERSITY OF MARYLAND

	Term expires
George M. Shriver, *Chairman*, Pikesville, Baltimore County	1942
John M. Dennis, *Treasurer*, Riderwood, Baltimore County	1941
W. W. Skinner, *Secretary*, Kensington, Montgomery County	1936
William P. Cole, Jr., Towson, Baltimore County	1940
Henry Holzapfel, Jr., Hagerstown, Washington County	1934
John E. Raine, Towson, Baltimore County	1939
Clinton L. Riggs, Latrobe Apartments, Baltimore	1942
Mrs. John L. Whitehurst, 3902 St. Paul Street, Baltimore	1938

Raymond A. Pearson, M.S., D.Agr., LL.D., *President and Executive Officer*

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J. Ben Robinson, D.D.S., F.A.C.D.	Dean of the School of Dentistry

THE UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

AND

COLLEGE OF PHYSICIANS AND SURGEONS

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William S. Gardner, M.D.
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J. M. H. Rowland, M.D.
Alexius McGlannan, A.M., M.D., LL.D.
Hugh R. Spencer, M.D.
H. Boyd Wylie, M.D.
Carl L. Davis, M.D.
Maurice C. Pincoffs, B.S., M.D.
Frank W. Hachtel, M.D.
Eduard Uhlenhuth, Ph.D.
Clyde A. Clapp, M.D.
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J. Frank Crouch, M.D.	Professor Emeritus of Clinical Ophthalmology and Otology
John R. Winslow, A.B., M.D.	Professor Emeritus of Rhinology and Laryngology
L. E. Neale, M.D., LL.D.	Professor Emeritus of Obstetrics
Frank Dyer Sanger, M.D.	Professor Emeritus of Rhinology and Laryngology
Harry Friedenwald, A.B., M.D.	Professor Emeritus of Ophthalmology

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John G. Runkle, M.D., Assistant in Ophthalmology.
Margaret B. Ballard, M.D., Assistant in Obstetrics.
E. S. Edlavitch, M.D., Assistant in Gynecology and Obstetrics.
Birckhead McGowan, M.D., Assistant in Diseases of the Nose and Throat and Otology.
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David Tenner, M.D., Assistant in Medicine.
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Aaron C. Sollod, M.D., Assistant in Gastro-Enterology.
Eli Contract, M.D., Assistant in Gastro-Enterology.

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Julius Goodman, M.D., Assistant in Surgery.
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Egbert L. Mortimer, Jr., M.D., Assistant in Orthopaedic Surgery.
Dudley P. Bowe, M.D., Assistant in Obstetrics.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE
AND
COLLEGE OF PHYSICIANS AND SURGEONS

As a result of the merger accomplished in 1915 the combined schools offer the student the abundant resources of both institutions, and, in addition, by earlier combination with the Baltimore Medical College, the entire equipment of three large medical colleges.

The School of Medicine of the University of Maryland is one of the oldest foundations for medical education in America, ranking fifth in point of age among the medical colleges of the United States. It was organized in 1807, and chartered in 1808, under the name of the College of Medicine of Maryland, and its first class was graduated in 1810. In 1812 the College was empowered by the Legislature to annex three other colleges or faculties: Divinity, Law, and Arts and Sciences; and the four colleges thus united were "constituted an University by the name and under the title of the University of Maryland."

The beautiful college building at Lombard and Greene Streets, erected in 1812, is the oldest structure in America devoted to medical teaching. Here was founded one of the first medical libraries and the first medical college library in the United States.

Here for the first time in America dissecting was made a compulsory part of the Curriculum; here instruction in Dentistry was first given (1837) and here were first installed independent chairs for the teaching of Diseases of Women and Children (1867), and of Eye and Ear Diseases (1873).

The School of Medicine was one of the first to provide for adequate clinical instruction by the erection in 1823 of its own hospital, and in this hospital intramural residency for the senior student was first established.

In 1913, juncture was brought about with the Baltimore Medical College, an institution of thirty-two years' growth. By this association the facilities of the School of Medicine were enlarged in faculty, equipment and hospital connection.

The College of Physicians and Surgeons was incorporated in 1872, and established on Hanover Street in a building afterwards known as the Maternite, the first obstetrical hospital in Maryland. In 1878 union was affected with the Washington University School of Medicine, in existence since 1827, and the college was removed to Calvert and Saratoga streets. By this arrangement medical control of the City Hospital, now the Mercy Hospital, was obtained.

ORGANIZATION OF THE SCHOOL OF MEDICINE

LABORATORY FACILITIES

The laboratories are located at two centers, the group of buildings at Greene and Lombard Streets, and at 32 and 34 South Paca Street. The schedule is so adjusted that the laboratory periods are placed with a view of obviating unnecessary movement on the part of the classes. The building known as Gray Laboratory, at Greene and Lombard Streets, houses three departments. The Anatomical Laboratory is placed upon the top floor, where skylights and an auxiliary modern system of electric lighting give adequate illumination of the subjects. The Department of Pharmacology occupies the second floor. There is a large room for the general student laboratory, which is thoroughly equipped with apparatus of recent acquisition, and in addition contains many instruments of unique and original design. With office and stockroom adjoining, this laboratory is complete for student experimentation. On the first floor of Gray Laboratory is the Department of Physiology. In addition to the large student laboratory, which is constructed for groups of fifty-eight students, there are rooms for the departmental office, preparation of material, and storage of apparatus. An additional room is devoted exclusively to mammalian experiments. In this building there is maintained an animal room in which is kept an abundance of material for experimental purposes. The embalming and storage plant for the Department of Anatomy is in physical connection with the building and its special departments. The laboratories of physiology and pharmacology are completely equipped with apparatus lockers, so that, in accord with the best ideas of instruction, the students work in groups of two each, and each group has sufficient apparatus, so that the experimental work can be carried on without delay or recourse to a general stockroom.

The laboratories of Pathology, Bacteriology, Biochemistry and Clinical Pathology are located in the Medical laboratory building on Greene Street north of Lombard.

The Departments of Pathology, Bacteriology and Clinical Pathology use, conjointly, the large modernly equipped student laboratory on the second floor. The capacity is one hundred students. On the second floor also there are students' preparation rooms for the making and sterilization of media, cold storage and incubating rooms and research laboratories for the departments of Bacteriology and Clinical Pathology.

On the main floor of this building are the offices, library, research and technical rooms of the Departments of Pathology and Bacteriology. The Department of Art also occupies quarters on this floor. The basement is given over to teaching museums, store rooms, students' locker room and lavatories.

The Department of Biological Chemistry is housed on the top floor of this building. The space allotted to teaching includes a large student laboratory equipped with one hundred and thirty-two commodious locker units, supplied with gas, hot and cold water, vacuum and direct current service, a special apparatus room, a warm room, a colorimeter room, a balance room, a first-aid room and a stockroom. These rooms are appointed with modern laboratory furniture and apparatus, a constant temperature and ventilating system, and equipped and arranged for economic use of the students' time.

Adjoining the students' space are private offices and laboratories of the staff, a departmental library, a shop and a preparation room.

In the Main Building is the Museum of Anatomy, where are arranged for student reference, specimens which represent the careful selection of material over a period of many years. In the University Hospital is the Student Laboratory for the analytical studies by those students who are serving as clinical clerks on the wards. A similar laboratory is maintained in the building at the northwest corner of Saratoga and Calvert Streets, for the student work on the wards of the Mercy Hospital.

At 32 and 34 South Paca Street are the Laboratories of Histology and Embryology. These laboratories accommodate one hundred and twenty-five students, or the full class, and are equipped with necessary lockers for microscopes and apparatus. The department housed in this building is provided with individual offices, preparation and stockrooms.

CLINICAL FACILITIES

UNIVERSITY HOSPITAL

The University Hospital, which is the property of the University of Maryland, is the oldest institution for the care of the sick in the State of Maryland. It was opened in September, 1823, under the name of the Baltimore Infirmary, and at that time consisted of but four wards, one of which was reserved for eye patients.

The present hospital has a capacity of two hundred and fifty beds, devoted to general medicine, surgery, obstetrics and the various medical and surgical specialties. It is equipped with a thoroughly modern X-ray department and clinical laboratory, and a post-mortem building which is constructed with special reference to the instruction of students in pathological anatomy.

The hospital is situated opposite the medical school buildings, so that the students lose no time in passing from the lecture halls and laboratories to the clinical amphitheater, dispensary and wards.

Owing to its situation, adjacent to the largest manufacturing district of the city and the shipping district, large numbers of accident patients are received. These, combined with a large number of sick seamen and with patients from our own city, furnish a large amount of clinical material. Accommodations for twenty-five obstetrical patients are provided in the hospital for the purpose of furnishing actual obstetrical experience to each member of the graduating class.

Our new Hospital at the corner of Redwood and Greene Streets, containining four hundred beds, will be ready for occupancy during the session 1934–1935. This will be a splendid increase in our clinical facilities.

The present Hospital will be reconditioned for the use of our Outdoor Clinic. This will give us a much needed increase in space for this purpose and add to the usefulness and efficiency of this very valuable adjunct to our hospital teaching.

In connection with the University Hospital an outdoor obstetrical clinic is conducted, in which every patient is given careful prenatal supervision, is attended during labor by a senior student, supervised by a hospital physician and assisted by a graduate nurse, and is visited during the puerperium by the attending student and graduate nurse. Careful prenatal, labor and puerperal records are kept, making this work of extreme value to the medical student, not only from the obstetrical standpoint, but also helping him to appreciate the value of social service and public health work.

During the year ending December 31, 1933, 370 cases were delivered in the hospital and 1052 cases in the outdoor department. Students in the graduating class delivered or observed an average of fourteen cases, each student being required to deliver ten cases.

The dispensaries associated with the University Hospital and the Mercy Hospital are organized upon a uniform plan in order that the teaching may be the same in each. Each dispensary has the following departments: Medicine, Surgery, Obstetrics, Pediatrics, Eye and Ear, Genito-Urinary, Gynecology, Gastro-Enterology, Neurology, Orthopaedics, Proctology, Dermatology, Throat and Nose, Tuberculosis and Psychiatry.

All students in their junior year work in the departments of Medicine and Surgery each day in one of the dispensaries.

All students in their senior year work in the special departments one hour each day.

HOSPITAL COUNCIL

Raymond A. Pearson, M.S., D.Agr., LL.D., *President.*
George M. Shriver, Esq., *Chairman of the Board of Regents.*
J. M. H. Rowland, M.D., *Dean of the School of Medicine.*
M. C. Pincoffs, B.S., M.D., *Head of the Department of Medicine.*
A. M. Shipley, M.D., Sc.D., *Head of the Department of Surgery.*
A. J. Lomas, M.D., C.M., D.P.H., *Superintendent of the Hospital.*
Miss Annie Crighton, R.N., *Superintendent of Nurses.*
Mrs. John L. Whitehurst.
W. B. Brooks, Esq.
Miss Florence Sadtler, *Representing Woman's Auxiliary Board.*

W. H. Toulson, M.D. C. Reid Edwards, M.D.	*Representing Hospital Staff*
George Sargent, M.D. John Evans, M.D.	*Representing Medical Alumni*

UNIVERSITY HOSPITAL STAFF

A. J. Lomas, M.D., C.M., D.P.H., *Superintendent of the Hospital*

Physicians

Maurice C. Pincoffs, B.S., M.D.

Harry M. Stein, M.D.
Walter A. Baetjer, M.D.
C. C. Habliston, M.D.
L. A. M. Krause, M.D.
G. Carroll Lockard, M.D.
Joseph E. Gichner, M.D.
William H. Smith, M.D.
William S. Love, Jr., M.D.

Gastro-Enterologists

Julius Friedenwald, A.M., M.D.
Theodore H. Morrison, M.D.

Neurologist

Irving J. Spear, M.D.

Psychiatrist

R. M. Chapman, M.D.

Pediatricians

C. Loring Joslin, M.D.

Clarence E. Macke, M.D.
Albert Jaffe, M.D.

Pathologists

Hugh R. Spencer, M.D.
S. Lloyd Johnson, M.D.

Surgeons

Randolph Winslow, A.M., M.D., LL.D.
Nathan Winslow, M.D.
Charles Reid Edwards, M.D.
Arthur M. Shipley, M.D., Sc.D.
Page Edmunds, M.D.
Frank S. Lynn, M.D.

Laryngologists

Edward A. Looper, M.D.
Franklin B. Anderson, M.D.

Proctologists

G. Milton Linthicum, A.M., M.D.
J. Dawson Reeder, M.D.
Monte Edwards, M.D.

Orthopaedic Surgeons

Allen Fiske Voshell, A.B., M.D.
Compton Riely, M.D.
Moses Gellman, B.S., M.D.

Genito-Urinary Surgeons

W. H. Toulson, A.B., M.Sc., M.D.
Lyle J. Millan, M.D.

Roentgenologists

Henry J. Walton, M.D.
Eugene L. Flippin, M.D.

Dermatologists

Melvin S. Rosenthal, M.D.
Harry M. Robinson, M.D.

Bronchoscopist

Edward A. Looper, M.D.

Anaesthetists

S. Griffith Davis, M.D.
E. Hollister Davis, A.B., M.D.
George H. Yeager, B.S., M.D.
Mary J. O'Brien, R.N.

Obstetricians

J. M. H. Rowland, M.D.
M. A. Novey, A.B., M.D.
Isadore A. Siegel, A.B., M.D.
L. H. Douglass, M.D.
J. G. M. Reese, M.D.
E. P. H. Harrison, Jr., A.B., M.D.

Ophthalmologists

Clyde A. Clapp, M.D.
William Tarun, M.D.

Otologist

J. W. Downey, Jr., M.D.

Gynecologists

W. S. Gardner, M.D.
J. M. Hundley, Jr., M.D.
R. G. Willse, M.D.
Thos. K. Galvin, M.D.
Leo Brady, M.D.

UNIVERSITY HOSPITAL RESIDENT AND INTERN STAFF
1934–1935

RESIDENT STAFF

Harry Clay Hull, M.D., *Resident in Surgery.*
George Stansbury Baker, A.B., A.M., M.D., *Assistant Resident Surgeon.*
Samuel Eason Way, A.B., M.D., *Assistant Resident Surgeon.*
Albert Earle Barnhardt, A.B., M.D., *Assistant Resident Surgeon.*
Howard Stackhouse, Jr., M.D., *Assistant Resident Surgeon.*
James Irving Moore, A.B., M.D., *Resident in Nose and Throat.*
Harry V. Langeluttig, A.B., M.D., *Resident in Medicine.*
Lauriston L. Keown, A.B., M.D., *Assistant Resident in Medicine.*
E. Bruce Brooke, M.D., *Assistant Resident in Medicine.*
G. W. Brugler, M.D., *Assistant Resident in Medicine.*
John E. Savage, B.S., M.D., *Resident in Obstetrics.*
Newton Du Puy, M.D., *Assistant Resident in Obstetrics.*
John C. Dumler, B.S., M.D., *Resident in Gynecology.*

INTERN STAFF

Thurston R. Adams, M.D.
George E. Burgtorf, M.D.
D. D. Caples, M.D.
Robert W. Farr, M.D.
William L. Fearing, M.D.
Herbert Goldstone, M.D.
Charles L. Goodhand, M.D.
W. L. Howard, M.D.
Hugh McNally, M.D.
Helen I. Maginnis, M.D.
Edward Roberson, M.D.
Andrew Taylor, M.D.
W. H. Moursund, Jr., M.D.
Douglass A. Browning, D.D.S., (*Dental*)

UNIVERSITY HOSPITAL DISPENSARY STAFF

Medicine

L. A. M. Krause, M.D., *Chief of Clinic*

M. A. Fine, M.D.
J. G. Feman, M.D.
W. H. Triplett, M.D.
Joseph Lipsky, M.D.
R. B. Mitchell, Jr., M.D.

Diseases of the Stomach and Intestines

Samuel Morrison, *Chief of Clinic*

Joseph Sindler, M.D.
Z. Morgan, M.D.
C. Victor Richards, M.D.
Ernest Levi, M.D.
E. Contract, M.D.
M. S. Koppelman, M.D.
Z. Vance Hooper, M.D.
Walter Kohn, M.D.
Aaron C. Sollod, M.D.
L. R. Schoolman, M.D.
Albert J. Shochat

Neurology

Leon Freedom, M.D., *Chief of Clinic*
H. S. Rubinstein, M.D., *Chief of Clinic*

Mental Hygiene

RALPH P. TRUITT, M.D., *Director*

H. W. NEWELL, M.D.
ALICE G. ROCKWELL, Ph.D.

Diseases of the Lungs

C. C. HABLISTON, M.D., *Chief of Clinic*

LAWRENCE SERRA, M.D.
R. B. MITCHELL, JR., M.D.

Diseases of Metabolism

H. M. STEIN, M.D., *Chief of Clinic*

L. P. GUNDRY, M.D.

Cardiovascular Diseases

WILLIAM S. LOVE, JR., M.D., *Chief of Clinic*

FRANK J. GERAGHTY, M.D.
SAMUEL J. HANKIN, M.D.
H. C. GRANT, M.D.
CARL P. ROETLING, M.D.

Allergy Clinic

H. M. BUBERT, M.D., *Chief of Clinic*

Pediatrics

C. LORING JOSLIN, M.D., *Director*
JOHN H. TRABAND, M.D., *Chief of Clinic*
CLARENCE E. MACKE, M.D., *Chief of Clinic*

ALBERT JAFFE, M.D.
WILLIAM J. TODD, M.D.
F. STRATNER OREM, M.D.
WILLIAM G. GEYER, M.D.
R. M. HENING, M.D.
MARIE KOVNER, M.D.
CLEWELL HOWELL, M.D.
SAMUEL S. GLICK, M.D.
A. H. FINKELSTEIN, M.D.
M. PAUL BYERLY, M.D.
MORRIS A. FINE, M.D.
WILLIAM G. QUEEN, M.D.
HARRY A. RUTLEDGE, M.D.
SAMUEL T. HELMS, M.D.
ISRAEL P. MERANSKI, M.D.
WALTER A. ANDERSON, M.D.

H. D. FRANKLIN, M.D.

Surgery

CHARLES REID EDWARDS, M.D., *Chief of Clinic*

J. WILLIS GUYTON, M.D.
THOMAS B. AYCOCK, M.D.
E. S. JOHNSON, M.D.
W. R. JOHNSON, M.D.
J. FRANK HEWITT, M.D.
JAS. C. OWINGS, M.D.
LUTHER, E. LITTLE, M.D.
C. F. KARNS, M.D.
A. C. MONNINGER, M.D.
W. W. WALKER, M.D.
A. V. BUCHNESS, M.D.
W. N. MCFAUL, JR., M.D.
GEO. H. YEAGER, M.D.
C. W. PEAKE, M.D.

ALBERT R. WILKERSON, M.D.

Orthopaedic Surgery

Allen Fiske Voshell, A.B., M.D., *Chief of Clinic*

Moses Gellman, B.S., M.D.
I. H. Maseritz, M.D.
J. G. Benesunes, M.D.

Genito-Urinary

W. H. Toulson, M.D., *Chief of Clinic*

Samuel T. Helms, M.D.
Milton C. Lang, M.D.
L. K. Fargo, M.D.
Lyle J. Millan, M.D.

Roentgenology

Henry J. Walton, M.D., *Chief of Clinic*
Eugene L. Flippin, M.D.

Dermatology

H. M. Robinson, M.D., *Chief of Clinic*

M. H. Goodman, M.D.
Francis Ellis, M.D.
A. C. Monninger, M.D.

Nose and Throat

Franklin B. Anderson, M.D., *Chief of Clinic*

Thomas R. O'Rourk, M.D.
Birkhead McGowan, M.D.
Joseph Nurkin, M.D.
Benjamin S. Rich, M.D.

Colon and Rectum

Monte Edwards, M.D., *Chief of Clinic*

Gynecology

J. M. Hundley, Jr., M.D.
James J. Marston, M.D.
William J. Fulton, M.D.
Leo Brady, M.D.
John T. Hibbitts, M.D.
Kenneth Boyd, M.D.
Joseph V. Castagna, M.D.
E. Eugene Covington, M.D.
Thomas S. Boyer, M.D.

Oral Surgery

Brice M. Dorsey, D.D.S., *Chief of Clinic*
Harold Goldstein, D.D.S.
William E. Hahn, D.D.S.
Samuel H. Bryant, D.D.S.

Obstetrics

L. H. Douglass, M.D., *Chief of Clinic*

J. G. M. Reese, M.D.
M. Alexander Novey, M.D.
Maxwell Mazer, M.D.
Isadore A. Siegel, A.B., M.D.
Margaret B. Ballard, M.D.
S. K. Wallace, M.D.
E. P. H. Harrison, A.B., M.D.
Kenneth B. Boyd, M.D.
George L. Wissig, M.D.

Ophthalmology

Henry F. Graff, A.B., M.D., *Chief of Clinic*

John G. Runkle, M.D. Frank A. Pacienza, M.D.

Otology

J. W. Downey, M.D., *Chief of Clinic*

Social Service

Miss Grace Pearson, *Directress*

UNIVERSITY HOSPITAL DISPENSARY

Report from October 1, 1932 to September 30, 1933

Department	*New Cases*	*Old Cases*	*Total*
Pediatrics	3,190	20,159	23,349
Dermatology	7,163	9,358	16,521
Surgery	3,562	10,967	14,529
Orthopedics	1,501	9,574	11,075
Medicine	1,944	8,931	10,875
Obstetrics	2,166	7,210	9,376
Gynecology	1,752	4,074	5,826
Genito-Urinary	888	4,565	5,453
Eye	1,606	3,065	4,671
Nose and Throat	1,490	1,309	2,799
Gastro-Intestinal	443	1,937	2,380
Oncology	182	1,376	1,558
Tuberculosis	452	1,071	1,523
Neurology	412	957	1,369
Cardiology	180	993	1,173
Proctology	222	662	884
Ear	362	404	766
Cystoscopy	74	328	402
Mental Hygiene	646	610	1,256
Total	28,235	87,550	115,785

MERCY HOSPITAL

The Sisters of Mercy first assumed charge of the Hospital at the corner of Calvert and Saratoga Streets, then owned by the Washington University, in 1874. By the merger of 1878 the Hospital came under the control of the College of Physicians and Surgeons, but the Sisters continued their work of administering to the patients.

In a very few years it became apparent that the City Hospital, as it was then called, was much too small to accommodate the rapidly growing demands upon it. However, it was not until 1888 that the Sisters of Mercy, with the assistance of the Faculty of the College of Physicians and Surgeons, were able to lay the cornerstone of the present Hospital. This building was completed and occupied late in 1889. Since then the growing demands for more space have compelled the erection of additions, until now there are accommodations for 275 patients.

In 1909 the name was changed from The Baltimore City Hospital to Mercy Hospital.

The clinical material in the free wards is under the exclusive control of the Faculty of the University of Maryland School of Medicine and College of Physicians and Surgeons.

The Hospital adjoins the College building, and all surgical patients from the public wards are operated upon in the College operating rooms. This union of the Hospital and College buildings greatly facilitates the clinical teaching.

Mercy Hospital is the hospital of the United Railways and Electric Company of Baltimore City, and receives patients from the Baltimore and Ohio Railroad Company and from the Pennsylvania Railroad Company and its branches.

MERCY HOSPITAL STAFF

BOARD OF GOVERNORS

George M. Shriver, Esq., *Chairman*

Mother M. Ricarda
Sister M. Helen
Sister M. Hildegarde
Sister M. Vincent
Sister M. Cornella

Dr. Alexius McGlannan
Dr. Walter D. Wise
Dr. Charles E. Brack
Dr. Waitman F. Zinn
Dr. Standish McCleary

MERCY HOSPITAL STAFF

SURGICAL DIVISION

Alexius McGlannan, A.M., M.D., LL.D.
W. D. Wise, M.D.
C. F. Blake, M.D.

Elliott Hutchins, A.M., M.D.
A. M. Evans, M.D.
F. L. Jennings, M.D.

Associate Surgeons

R. H. Locher, M.D.
T. R. Chambers, A.M., M.D.
D. J. Pessagno, M.D.

I. O. Ridgely, M.D.
N. C. Marvel, M.D.
H. F. Bongardt, M.D.

J. J. Leyko, M.D.

Assistant Surgeons

Charles Maxson, M.D.
H. B. McElwain, M.D.
T. J. Touhey, M.D.
Dwight Mohr, M.D.

J. W. Nelson, M.D.
John A. O'Connor, M.D.
Simon Brager, M.D.
Julius Goodman, M.D.

I. R. Trimble, M.D.

Ophthalmologist and Otologist

Harry Friedenwald, A.B., M.D.

Associates

H. K. Fleck, M.D.
J. W. Downey, M.D.

Rhinologists and Laryngologists

Frank D. Sanger, M.D.
Waitman F. Zinn, M.D.
George W. Mitchell, M.D.
Raymond McKenzie, M.D.

Associates

F. A. Pacienza, M.D.
Birckhead McGowan, M.D.
F. A. Kayser, M.D.

Proctologist

Charles F. Blake, M.D.

Orthopaedic Surgeon

Albertus Cotton, M.D.

Associate

H. L. Rogers, M.D.

Urologist

Alexander J. Gillis

Associate

Kenneth D. Legge, M.D.

Dentist

J. D. Fusco, D.D.S.

MEDICAL DIVISION

Physicians

Maurice C. Pincoffs, B.S., M.D.
Standish McCleary, M.D.
Cary B. Gamble, M.D.
Harvey G. Beck, M.D.

Associates

Hubert C. Knapp, M.D.
C. C. W. Judd, M.D.
H. R. Peters, M.D.
Bartus T. Baggott, M.D.
George McLean, M.D.
L. A. M. Krause, M.D.
John E. Legge, M.D.
J. S. Eastland. M.D.

Assistant Physicians

Wetherbee Fort, M.D.
J. M. Miller, M.D.
S. A. Tumminello, M.D.

Gastro-Enterologist

Julius Friedenwald, A.M., M.D.

Associates

T. Frederick Leitz, M.D.
Theodore Morrison, M.D.

Assistants

Maurice Feldman, M.D.
Joseph Sindler, M.D.
H. William Primakoff

Pediatricians

John Ruhräh, M.D.
Edgar B. Friedenwald, M.D.

Associate Pediatrician

F. B. Smith, M.D.

Assistant Pediatricians

W. J. Schmitz, M.D.
G. B. Mansdorfer, M.D.

Neurologist and Psychiatrist

Andrew C. Gillis, M.D.

Associate

Milford Levy, M.D.

Dermatologist

Melvin Rosenthal, M.D.

OBSTETRICAL DIVISION

Charles E. Brack, M.D.
A. Samuels, M.D.
W. S. Gardner, M.D.
G. A. Strauss, M.D.
E. P. Smith, M.D.
J. J. Erwin, M.D.
T. K. Galvin, M.D.
E. S. Edlavitch, M.D.
Frank K. Morris, M.D.

GYNECOLOGICAL DIVISION

Gynecologist

William S. Gardner, M.D.
George A. Strauss, M.D.
Abram Samuels, M.D.
E. P. Smith, M.D.
T. K. Galvin, M.D.

Associate

J. J. Erwin, M.D.

Assistants

E. S. Edlavitch, M.D.
Frank K. Morris, M.D.

PATHOLOGICAL DIVISION

Standish McCleary, M.D.
Hugh R. Spencer, M.D.

Clinical Pathologists

H. T. Collenberg, M.D.
H. R. Peters, M.D.
Emil G. Schmidt, Ph.D.

Technicians

Sister Mary Kevin
Elizabeth Crook

X-RAY DEPARTMENT

Radiographers

Albertus Cotton, M.D.
Harry L. Rogers, M.D.
William Greenfeld, M.D.

Technician

Sister M. Antonia, R.N.

MERCY HOSPITAL RESIDENT STAFF

Raymond Helfrich, M.D., *Resident Surgeon*
Daniel R. Robinson, M.D., *Assistant Resident Surgeon*
Meyer H. Zuravin, M.D., *Assistant Resident Surgeon*
Joseph A. Belz, M.D., *Assistant Resident Surgeon*
Thomas Haigley, M.D., *Assistant Resident Surgeon*
George H. Carr, Jr., M.D., *Resident Physician*
Philip D. Flynn, M.D., *Assistant Resident Surgeon*
Howard L. Zupnik, M.D., *Resident Gynecologist*
Sol Smith, M.D., *Resident Pathologist*

Interne Staff 1934–1935

Ira E. Bayer, Jr., M.D.
George S. Bayley, M.D.
Edgar T. Campbell, M.D.
Regis F. Downey, M.D.
Joseph V. Jerardi, M.D.
Alfred C. Moore, M.D.
James G. Sasscer, M.D.
Theodore A. Schwartz, M.D.
Richard J. Sekerak, M.D.

MERCY HOSPITAL DISPENSARY STAFF

Surgery

Supervisor Julius J. Leyko, M.D.

Attending Surgeons

D. H. Mohr, M.D.
I. O. Ridgley, M.D.
John O'Connor, M.D.
H. F. Bongardt, M.D.
T. J. Touhey, M.D.
J. W. Nelson, M.D.
Simon Brager, M.D.
Julius Goodman, M.D.
I. R. Trimble, M.D.

Genito-Urinary Surgery

A. J. Gillis, M.D.
K. D. Legge, M.D.

Orthopaedic Surgery

Albertus Cotton, M.D.
Harry L. Rogers, M.D.
I. H. Maseritz, M.D.

Medicine

Supervisor M. C. Pincoffs, B.S., M.D.

Attending Physicians

Henry Sheppard, M.D.
Earl L. Chambers, M.D. } *Chiefs of Clinic*

J. M. Miller
S. Snyder, M.D.
S. A. Tumminello, M.D.

Cardiovascular Diseases

T. C. Wolff, M.D., *Chief of Clinic*

Diseases of the Lungs

S. Snyder, M.D., *Chief of Clinic*

Diseases of Metabolism

J. S. Eastland, M.D., *Chief of Clinic*

Allergic Diseases

H. M. Bubert, M.D., *Chief of Clinic*
S. Snyder, M.D.

Diseases of Stomach

Supervisor, Julius Friedenwald, A.M., M.D.

Attending Physicians

T. Frederick Leitz, M.D.
Theodore H. Morrison, M.D.
M. Feldman, M.D.
Joseph Sindler, M.D.
I. I. Levy, M.D.

Esophagoscopist

Waitman F. Zinn, M.D.

Nervous Diseases

Supervisor, A. C. Gillis, M.D.

Attending Physicians

Milford Levy, M.D.
Miriam F. Dunn, M.D.

Pediatrics

Supervisor, Edgar B. Friedenwald, M.D.

Attending Physician, W. J. Schmitz, M.D.

Gynecology

Supervisors

W. S. Gardner, M.D.
A. Samuels, M.D.

Attending Surgeons

George A. Strauss, M.D.
E. Edlavitch, M.D.
J. J. Erwin, M.D.
F. W. Gillis, M.D.
F. K. Morris, M.D.

Diseases of Nose and Throat

W. F. Zinn, M.D.
R. F. McKenzie, M.D.
Benjamin S. Rich, M.D.
Horace Strickland, M.D.
B. McGowan, M.D.

Diseases of Eye and Ear

H. F. Fleck, M.D.
M. Raskin, M.D.
J. I. Kemler, M.D.
F. A. Pacienza, M.D.

Dermatology

Melvin Rosenthal, M.D.
Llewellyn Lord, M.D.

Social Service Department

Sister Mary Hildegard
Katherine Craycroft

MERCY HOSPITAL DISPENSARY

(1933)

	Old	*New*	*Total*
Surgery	4,452	1,559	6,011
Medicine	2,810	1,475	4,285
Cardiac	277	77	354
Diabetic	244	19	263
Gynecology	879	447	1,326
Eye and Ear	543	329	872
Nose and Throat	799	749	1,548
Neurology	765	132	897
Pediatrics	297	292	589
Gastro-Intestinal	271	123	394
Dental	147	283	430
Rectal	115	86	201
Orthopedics	1,600	535	2,135
Skin	681	399	1,080
Genito-Urinary	2,283	491	2,774
Total	16,163	6,996	23,159

OTHER CLINICAL FACILITIES

THE BALTIMORE CITY HOSPITALS

The clinical advantages of the University have been largely increased by the liberal decision of the Board of Supervisors of City Charities to allow the immense material of these hospitals to be used for the purpose of medical education. There are daily visits and clinics in medicine and surgery by the Staff of the Hospitals. The autopsy material is unsurpassed in this country in amount, thoroughness of study, and the use made of it in medical teaching.

The Baltimore City Hospitals consist of the following separate hospitals:

The General Hospital, 400 beds.
The Hospital for Chronic Cases, 300 beds.
The Hospital for Tuberculosis, 172 beds.
The Psychopathic Hospital, 325 beds.
Infirmary (Home for Aged) 911 beds.

STAFF OF BALTIMORE CITY HOSPITALS

Parker J. McMillin, *Superintendent*

VISITING STAFF

Physician-in-Chief	Thomas R. Boggs, S.B., M.D.
Surgeon-in-Chief	Arthur M. Shipley, ScD., M.D.
Physician-in-Chief, Tuberculosis Hospital	C. C. Habliston, M.D.
Physician-in-Chief, Psychopathic Hospital	Harry Goldsmith, M.D.
Obstetrician-in-Chief	Louis H. Douglass, M.D.
Pediatrician-in-Chief	Edwards A. Park, M.D.
Visiting Pathologist	S. S. Blackman, A.B., M.D.
Resident Pathologist	Ralph Stevenson, M.D.

CONSULTING STAFF

Gynecologists	R. G. Willse, M.D. J. Mason Hundley, Jr., M.A., M.D.
Urologist	W. H. Toulson, A.B., M.D.
Laryngologist	Edward A. Looper, M.D.
Pediatrician	Lawson Wilkins, M.D.
Neurological Surgeon	Charles Bagley, M.D.
Psychiatrist	Esther L. Richards, M.D.
Orthopaedists	Allen Fiske Voshell, A.B., M.D. H. S. Wheeler, M.D. J. Alvin Jones, M.D.
Proctologist	Monte Edwards, M.D.
Assisting Visiting Physician	Charles R. Austrian, M.D.
Assisting Visiting Surgeons	Frank S. Lynn, M.D. C. A. Reifschneider, M.D. T. B. Aycock, M.D.

Assistant Neurologist	O. R. Langworthy, M.D.
Assistant Physician—Tuberculosis	Henry C. Smith, M.D.
Ophthalmologist	Cecil Bagley, M.D.
Dermatologist	Isaac R. Pels, M.D.
Roentgenologist	John W. Pierson, M.D.

THE JAMES LAWRENCE KERNAN HOSPITAL AND INDUSTRIAL SCHOOL OF MARYLAND FOR CRIPPLED CHILDREN

This institution is situated on an estate of 75 acres at Hillsdale. The site is just within the northwestern city limits and of easy access from the city proper.

The location is ideal for the treatment of children, in that it affords all the advantages of sunshine and country air.

A complete hospital unit, new in every respect, offers all modern facilities for the care of any orthopaedic condition in children.

The hospital is equipped with 82 beds—endowed, and city and state supported.

The Children's Orthopaedic Dispensary at the University Hospital is maintained in closest affiliation and cares for the cases discharged from the Kernan Hospital. The physiotherapy department is very well equipped with modern apparatus and trained personnel.

STAFF

Surgeon-in-Chief and Medical Director	Allen Fiske Voshell, A.B., M.D.
Attending Orthopaedic Surgeon	Albertus Cotton, A.M., M.D.
Associate Orthopaedic Surgeons	Moses Gellman, B.S., M.D. Harry L. Rogers, M.D.
Resident Orthopaedic Surgeon	E. M. Karp, B.S., M.D.
Consulting Surgeons	J. M. T. Finney, A.B., M.D., D.S.M., F.R.C.S., (Eng., Ire.) Hon. Arthur M. Shipley, Sc.D., M.D.
Consulting Plastic Surgeon	John Staige Davis, B.Sc., M.D.
Consulting Neurological Surgeon	Charles Bagley, Jr., A.B., M.D.
Consulting Oculist	Harry Friedenwald, M.D.
Oculist	F. A. Pacienza, M.D.
Consulting Aurist and Laryngologist	Edward A. Looper, M.D.
Aurist and Laryngologist	F. B. Anderson, M.D.
Consulting Dentist	Harry B. McCarthy, D.D.S.
Dentist	M. E. Coberth, D.D.S.
Consulting Physicians	Thomas B. Futcher, A.B., M.D. Thomas R. Brown, A.B., M.D. Lewellys F. Barker, A.B., M.D.
Pediatrist	Benjamin Tappan, A.B., M.D.
Dermatologists	Harry M. Robinson, M.D. Leon Ginsberg, M.D.
Consulting Pathologists	Sydney M. Cone, A.B., M.D. Hugh R. Spencer, M.D.
Consulting Neurologist	Irving J. Spear, M.D.

Neurologist	R. V. Seliger, M.D.
Anesthetists	J. A. Tompkins, M.D. J. D. Holly, M.D.
Roentgenologist	Albertus Cotton, A.M., M.D.
Superintendent	Miss C. Gertrude Forrester, R.N.
Dispensary and Social Service Nurse	Miss Mabel S. Brown, R.N.
Physiotherapist and X-Ray Technician	Mrs. Georgiana Wisong
Instructor in Grammar School	Miss Laura Hampson

ST. VINCENT'S INFANT ASYLUM

The facilities of this institution, containing 150 infants and children, have been kindly extended to the University of Maryland by the Sisters of Charity. This large clinic enables this school to present to its students liberal opportunities for the study of diseases of infants and children.

STAFF

Obstetricians	Thos. K. Galvin, M.D. Frank K. Morris, M.D.
Pediatricians	W. C. Bacon, M.D. C. L. Joslin, M.D. Clewell Howell, M.D. Chas. R. Goldsborough, M.D.
Surgeon	N. Winslow, M.D.
Dermatologist	J. A. Buchness, M.D.
Oculist	Clyde A. Clapp, M.D.
Laryngologist	Franklin B. Anderson, M.D.
Orthopaedic Surgeon	H. L. Wheeler, M.D.
Physician	C. P. Clautice, M.D.

LIBRARIES

The University Library, founded in 1813 by the purchase of the collection of Dr. John Crawford, now contains 9,102 volumes, a file of 188 current medical journals, and several thousand pamphlets and reprints. It is well stocked with recent literature, including books and periodicals of general interest. The home of the library is Davidge Hall, a comfortable and commodious building in close proximity to the classrooms and the laboratories of the Medical Department. The library is open daily during the year for use of members of the faculty, the students, and the profession generally.

The Library of the Medical and Chirurgical Faculty of Maryland, containing 45,000 volumes, is open to the students of the school. The leading medical publications of the world are received by the library, and complete sets of many journals are available. Other libraries of Baltimore are the Peabody (250,000 volumes) and the Enoch Pratt Free Library (711,527 volumes).

All these libraries are open to the students of the school without charge.

ORGANIZATION OF THE CURRICULUM

The following curriculum is the result of a thorough revision of teaching in this school in order to meet modern requirements. The multiplication of specialties in medicine and surgery necessitates a very crowded course and the introduction of electives will very soon be depended on to solve some of the difficulties.

The curriculum is organized under eleven departments.

1. Anatomy (including Histology and Embryology).
2. Physiology.
3. Bacteriology and Immunology.
4. Biological Chemistry.
5. Pharmacology and Materia Medica.
6. Pathology.
7. Medicine (including Medical Specialties).
8. Surgery (including Surgical Specialties).
9. Obstetrics.
10. Gynecology.
11. Ophthalmology.

The instruction is given in four years of graded work.

Several courses of study extend through two years or more, but in no case are the students of different years thrown together in the same course of teaching.

The first and second years are devoted largely to the study of the structures and functions of the normal body. Laboratory work occupies most of the student's time during these two years.

Some introductory instruction in Medicine and Surgery is given in the second year. The third and fourth years are almost entirely clinical.

A special feature of instruction in the school is the attempt to bring together teacher and student in close personal relationship. In many courses of instruction the classes are divided into small groups and a large number of instructors insures attention to the needs of each student.

In most courses the final examination as the sole test of proficiency has disappeared and the student's final grade is determined largely by partial examinations, recitations and assigned work carried on throughout the course.

DEPARTMENT OF ANATOMY, INCLUDING GROSS ANATOMY, HISTOLOGY AND EMBRYOLOGY

Carl L. Davis, M.D.	Professor of Anatomy
Eduard Uhlenhuth, Ph.D.	Professor of Anatomy
Thomas B. Aycock, S.B., M.D.	Assistant Professor of Anatomy

John F. Lutz, M.D.	Associate in Histology
Monte Edwards, M.D.	Associate in Anatomy
Frank H. Figge, A.B., Ph.D.	Associate in Anatomy
H. S. Rubinstein, B.S., M.D., Ph.D.	Associate in Neuro-Anatomy
Joseph Pokorny, M.D.	Instructor in Histology
J. Hulla, M.D.	Instructor in Histology
Frank K. Morris, A.B., M.D.	Instructor in Anatomy
Martin J. Hanna, M.D.	Instructor in Histology
Luther E. Little, M.D.	Assistant in Anatomy

Gross Anatomy. *First Year.* Total number of hours 534. During the first semester, 5 lecture periods and 26 laboratory hours per week.

The entire course centers around the dissection of the human body. Each student is given opportunity to dissect an entire half (left or right) of the body. The dissection is supplemented by lectures and informal discussions.

Anatomy is taught as an independent science, emphasis being laid on the human species as contrasted with animal morphology. An attempt is made to familiarize the student with the elements of anthropometry, with systematic and regional anatomy, with the principles of topographical anatomy and with osteology.

The actual dissection is preceded by a general examination of the body surface and superficial organs. Opportunity is provided for taking representative measurements of the head, face, trunk and limbs, and of acquiring a knowledge of the use of anthropometric instruments. Throughout the dissection the student is encouraged to take measurements and weights of all the major organs, including the brain and the endocrines, and to obtain a knowledge of the proportions of each organ to the body as a whole, as well as to the variability of these proportions.

The dissection is undertaken in relation to topographical regions of the body, but systematic relations are continuously emphasized and, wherever possible, brought out by actual dissection.

Osteology is taught in conjunction with the dissection of the muscles and the study of the functional mechanism of the skeleto-muscular apparatus. Each student is provided with a set of bones to aid him in his homework. Fifty complete and perfect skeletons of the whole body and about as many of the limbs are available for reference and special advanced work.

Second, Third and Fourth Years. Opportunity is provided for advanced special dissections and for research work in every branch of anatomy. Dr. Uhlenhuth.

HISTOLOGY AND EMBRYOLOGY

First Year. This course has three subdivisions: First, general histology; second, organology; and third, the central nervous system, the last being distinguished as neuro-anatomy. The course in histology is divided equally between the study of the fundamental tissues and that of organs. Neuro-anatomy is taught during the first semester of the second year. Throughout the entire course the embryology of the part being studied precedes the study of the fully developed tissue. Thus embryology becomes a correlated part of the whole subject of microscopic anatomy and not an independent subject.

A brief course in histological technic precedes the study of histological tissues, thus familiarizing the student with the principles involved in the preparation of material for microscopic study. For the remainder of the course, students are furnished slides of the required tissues, previously prepared in our own laboratory, thus insuring a uniform and satisfactory quality of material for study and permitting the time of the student to be expended in the study of material rather than in the technic of its preparation.

Neuro-anatomy embraces a study of the fundamental structure of the central nervous system as applied to its function. An abundance of material permits of individual dissection of the human brain. A series of appropriately stained sections of the human brain stem is furnished each student for the microscopic study of the internal structure of the nervous system. Dr. Davis, Dr. Lutz, Dr. Rubinstein.

Total assigned hours, Microscopic Anatomy, 192.

For a description of the graduate courses offered by the members of the staff, consult the catalog of the Graduate School.

DEPARTMENT OF PHYSIOLOGY

Ferd A. Ries, M.D., Associate Professor of Physiology and Acting Head of the Department	
O. G. Harne, A.B	Associate Professor of Physiology
Elizabeth E. Painter, A.B	Instructor in Physiology
Marius P. Johnson, A.B., M.D	Instructor in Physiology

First Year. Lectures and conferences are given on the physiology of blood, gastro-intestinal tract, including secretion and absorption, liver and pancreas, methods employed to determine metabolism and the endocrine system. The laboratory work on these subjects is performed during the second year.

Lectures and conferences	26 hours

Second Year. Lectures, laboratory and conferences are given on the physiology of muscle-nerve, central nervous system and special senses, followed by work on respiration, circulation, metabolism and nutrition.

Lectures and conferences	48 hours
Laboratory	136 hours
Total	184 hours

For a description of the graduate courses offered by the members of the staff, consult the catalog of the Graduate School.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Frank W. Hachtel, M.D	Professor of Bacteriology
J. A. F. Pfeiffer, M.D	Instructor in Bacteriology
Henry F. Buettner, M.D	Instructor in Bacteriology
H. Edmund Levin, M.D	Assistant in Bacteriology
H. M. Bubert, M.D	Assistant in Bacteriology

Instruction in bacteriology is given in the laboratory to the students of of the second year during the first semester. This includes the various methods of preparation and sterilization of culture media, the study of pathogenic bacteria, and the bacteriological examination of water and milk. The bacteriological diagnosis of the communicable diseases is also included in this course. Animal inoculations are made in connection with the bacteria studied. The most important protozoa are also studied in the laboratory. The principles of general bacteriology are taught by quiz. conference and lecture.

The principles of immunology are presented by means of quizzes, conferences and lectures to the second-year class throughout the second semester, and practical experiments are carried out by the class in laboratory sessions.

	Bacteriology	*Immunology*
Lectures and recitations	16 hours	72 hours
Laboratory	104 hours	
Total	120 hours	72 hours

DEPARTMENT OF BIOLOGICAL CHEMISTRY

H. Boyd Wylie, M.D	Professor of Biological Chemistry
Emil G. Schmidt, Ph.D	Assistant Professor of Biological Chemistry
Frank N. Ogden, M.D	Associate in Biological Chemistry
Maurice J. Schmulovitz, A.B	Weaver Fellow in Biological Chemistry

This course is designed to present the fundamental concepts of biological chemistry. The phenomena of living matter, and its principal ingredients, secretions and excretions are discussed in lectures and conferences and examined experimentally. Training is afforded in routine biochemical methods of investigation.

Lectures	66 hours
Conferences	26 hours
Laboratory	88 hours
Total	180 hours

For a description of the graduate courses offered by the members of the staff, consult the catalog of the Graduate School.

DEPARTMENT OF PHARMACOLOGY

John C. Krantz, Jr., Ph.D.	Professor of Pharmacology
Ruth Musser, B.A., M.S.	Instructor in Pharmacology
William Ellsworth Evans, M.S.	Instructor in Pharmacology
William Glenn Harne	Demonstrator in Pharmacology
C. Jelleff Carr, B.S., M.S.	Isaac E. Emerson Fellow in Pharmacology

This course is designed to include those phases of pharmacology necessary for an intelligent use of drugs in the treatment of disease. The didactic instruction includes materia medica, pharmacy, prescription-writing, toxicology, posology, pharmaco-dynamics, and experimental therapeutics. The laboratory exercises parallel the course of lectures.

In addition, optional conference periods are available for students desiring further instruction or advice.

Lectures	64 hours
Laboratory	96 hours
Total	160 hours

Graduate Courses

Students pursuing graduate instruction in the biological sciences may select graduate courses in pharmacology. The foregoing course in systematic pharmacology designed for medical students is a prerequisite for these courses.

A general description of the specific courses offered is set forth in the bulletin of the Graduate School.

Opportunity will be provided for graduate students to engage in research in pharmacology and certain cognate sciences leading to graduate degrees.

DEPARTMENT OF PATHOLOGY

Hugh R. Spencer, M.D.	Professor of Pathology
Standish McCleary, M.D.	Professor of Pathology
Sydney M. Cone, A.B., M.D.	Associate Professor of Pathology
Robert B. Wright, M.D.	Assistant Professor of Pathology
C. Gardner Warner, M.D.	Assistant Professor of Pathology
Albert E. Goldstein, M.D.	Associate in Pathology
Walter C. Merkel, M.D.	Associate in Pathology
M. Alexander Novey, M.D.	Instructor in Pathology
Wm. S. Love, Jr., M.D.	Instructor in Pathology
Leon Freedom, M.D.	Instructor in Pathology
M. Harold Goodman, M.D.	Instructor in Pathology
Benjamin Abeshouse, M.D.	Instructor in Pathology
Ervin F. Lyon, M.D.	Instructor in Pathology

W. R. Johnson, M.D	Instructor in Pathology
Frank J. Geraghty, M.D	Instructor in Pathology
James G. Arnold, A.B., M.D	Assistant in Pathology
Conrad B. Acton, M.D	Assistant in Pathology
Robert W. Johnson, M.D	Assistant in Pathology
Ralph Stevenson, M.D	Assistant in Pathology

Courses of instruction in pathology are given during the second and third years. These courses are based on previous study of normal structure and function and aim to outline the natural history of disease. Instruction is made as practical as possible so that the student may become familiar with the appearance of tissues in disease and may be able to correlate anatomical lesions with clinical symptoms and signs.

1. General Pathology. (*Second Year.*) This course includes the study and demonstration of disturbances of the body fluids, disturbances of structure, nutrition and metabolism of cells, disturbances of fat, carbohydrate and protein metabolism, disturbances in pigment metabolism, inflammation and tumors.

2. Applied Pathology. Including Gross Morbid Anatomy and Morbid Physiology. (*Third Year.*) In this course the special relation of lesions to clinical symptoms and signs is emphasized.

In the laboratory the class is divided into groups for the study of classified autopsy material.

3. Autopsies. (*Third Year.*) Small groups of students attend autopsies at the morgues of the University Hospital and Baltimore City Hospital. They are required to assist at autopsies and to prepare protocols.

4. Clinical Pathological Conference. (*Fourth Year.*) In collaboration with the Department of Medicine. Material from autopsies is studied with reference to the correlation of the clinical aspects with the pathological findings.

5. Advanced Work in Pathology. Properly qualified students will be permitted to carry out advanced or research work along the lines of experimental pathology.

Summary

Second Year	
Lectures	50 hours
Laboratory	118 hours
Total	168 hours
Third Year	
Lectures	30 hours
Laboratory	130 hours
Total	160 hours
Fourth year	
Clinical Pathological Conference	30 hours

DEPARTMENT OF MEDICINE

Maurice C. Pincoffs, B.S., M.D	Professor of Medicine
Standish McCleary, M.D	Professor of Clinical Medicine
Jos. E. Gichner, M.D.	Professor of Clinical Medicine and Physical Therapeutics
G. Carroll Lockard, M.D	Professor of Clinical Medicine
Harvey G. Beck, Sc.D., M.D	Professor of Clinical Medicine
Harry M. Stein, M.D	Professor of Clinical Medicine
Paul W. Clough, B.S., M.D	Associate Professor of Medicine
C. C. W. Judd, A.B., M.D	Associate Professor of Medicine
Sydney R. Miller, A.B., M.D	Associate Professor of Medicine
Walter A. Baetjer, A.B., M.D	Associate Professor of Medicine
William H. Smith, M.D.	Associate Professor of Clinical Medicine
H. J. Maldeis, M.D	Associate Professor of Medical Jurisprudence
Charles C. Habliston, M.D	Associate Professor of Medicine
S. Lloyd Johnson, A.B., L.L.B., M.D	Assistant Professor of Medicine
John G. Huck, M.D	Assistant Professor of Medicine
George McLean, M.D	Assistant Professor of Medicine
L. A. M. Krause, M.D	Assistant Professor of Medicine
H. R. Peters, M.D	Assistant Professor of Medicine
W. S. Love, Jr., A.B., M.D	Assistant Professor of Medicine
H. M. Bubert, M.D	Associate in Medicine
J. S. Eastland, M.D	Associate in Medicine
Thomas C. Wolff, M.D	Associate in Medicine
T. Nelson Carey, M.D	Associate in Medicine
M. G. Gichner, M.D	Instructor in Medicine
Wm. A. Strauss, M.D	Instructor in Medicine
Henry Sheppard, M.D	Instructor in Medicine
Wetherbee Fort, M.D	Instructor in Medicine
Henry C. Smith, M.D	Instructor in Medicine
Frank J. Geraghty, M.D	Instructor in Medicine
L. P. Gundry, M.D	Instructor in Medicine
Samuel T. Helms, M.D	Instructor in Medicine
Bernard J. Cohen, M.D	Instructor in Medicine
Earl L. Chambers, M.D	Instructor in Medicine
Lawrence Serra, M.D	Instructor in Medicine
Nathaniel Beck, M.D	Assistant in Medicine
Carl Benson, M.D	Assistant in Medicine
A. Scagnetti, M.D	Assistant in Medicine
W. H. Triplett, M.D	Assistant in Medicine
David Tenner, M.D	Assistant in Medicine
M. Paul Byerly, M.D	Assistant in Medicine
H. Edmund Levin, M.D	Assistant in Medicine
J. Howard Burns, M.D	Assistant in Medicine
J. G. Feman, M.D	Assistant in Medicine
Morris Fine, M.D	Assistant in Medicine
R. B. Mitchell, Jr., M.D	Assistant in Medicine
George H. Carr, Jr., M.D	Assistant in Medicine

GENERAL OUTLINE

Second Year

Introduction to clinical medicine.
- (a) Introductory physical diagnosis.
  (1 hour a week, first semester: 2 hours a week, second semester.)
- (b) Medical clinics.
  (1 hour a week, second semester.)

Third Year

I. The methods of examination (13 hours a week).
- (a) History taking.
- (b) Physical diagnosis.
- (c) Clinical pathology.

These subjects are taught and practiced in the out-patient department and in the clinical laboratory.

II. The principles of medicine (7 hours a week).
- (a) Lectures, clinics and demonstrations in general medicine, neurology, pediatrics and preventive medicine.

III. The principles of therapeutics (1 hour a week).
  Lectures and demonstrations in general therapeutics, physical therapeutics and materia medica.

Fourth Year

The practice of medicine.

I. Clinical clerkship on the medical wards.
  (26 hours a week for ten weeks.)
- (a) Responsibility, under supervision, for the history, physical examination, laboratory examinations and progress notes of assigned cases.
- (b) Ward classes in general medicine, the medical specialties, and therapeutics.

II. Clinics in general medicine and the medical specialties.
  (6 hours a week.)

III. Dispensary work in the medical specialties.

IV. Clinical pathological conferences (1 hour a week).

Medical Dispensary Work

The medical dispensaries of both the Mercy and the University Hospitals are utilized for teaching in the third year. Each student spends two periods a week of two hours each in dispensary work. The work is done in groups of four to six students under an instructor. Systematic history-taking is especially stressed. Physical findings are demonstrated. The student becomes familiar with the commoner acute and chronic disease processes.

Physical Diagnosis

Second Year. Didactic lectures and practical demonstrations in topographical anatomy and normal physical signs.

Third Year. The class is divided into small groups, and each section receives instruction for four hours a week for the entire session in the medical dispensaries of the hospitals. The large clinical material of the dispensaries and hospitals is utilized to give each student the opportunity to familiarize himself with the common types of bodily structure, with the normal variations in physical signs and with the physical signs of the chief pulmonary, circulatory and abdominal diseases.

A course of lectures (1 hour a week) on physical diagnosis supplements the practical work in this subject.

Therapeutics

Third Year. General therapeutics and materia medica are taken up and an effort is made to familiarize the student with the practical treatment of disease. The special therapy of the chief diseases is then reviewed. One hour a week. Dr. Lockard.

Fourth Year. Special consideration is given to the practical application of therapeutic principles in bedside teaching and the chief therapeutic methods are demonstrated.

Students attend therapeutic ward rounds once a week throughout their medical trimester.

Tuberculosis

During the third year in connection with the instruction in physical diagnosis a practical course is given weekly to sections of the class at the Municipal Tuberculosis Hospital. Stress is laid upon the recognition of the physical signs of the disease, as well as upon its symptomatology and gross pathology.

Cardiology

During the fourth year an elective course in cardiology is offered at the Mercy Hospital. The course occupies one and one-half hours weekly. Physical diagnosis, electrocardiography and the therapeutic management of cardiac cases are stressed.

Syphilis

Third Year. During the third year the subject of syphilis is dealt with in the lecture course.

Fourth Year. An elective course in the therapeutic management of syphilis is offered in the dispensary.

CLINICAL PATHOLOGY

John G. Huck, M.D.	Assistant Professor of Medicine Head of Department of Clinical Pathology
H. J. Maldeis, M.D.	Associate Professor of Medical Jurisprudence

S. Lloyd Johnson, A.B., L.L.B., M.D	Assistant Professor of Medicine
Samuel T. Helms, M.D	Instructor in Medicine
E. M. Reese, M.S	Assistant in Medicine

During the third year the student is thoroughly drilled in the technic of the usual clinical laboratory work, so that he is able to perform all routine examinations which may be called for during his fourth year, in connection with the work in the wards and dispensary.

The practical work is supplemented by a series of didactic lectures and demonstrations in which the entire teaching staff of the department takes an active part. The microscopical and chemical study of blood, exudates and transudates, gastric juice, spinal fluid, feces and urine are successively taken up, and special attention directed to the clinical significance of the findings.

Clinical parasitology from the standpoint of the infecting agent and the carrier is given careful consideration.

The entire course is thoroughly practical. Each student has his own microscope and is provided with blood counters and hemoglobinometer for his exclusive use, and every two students are equipped with a special laboratory outfit for all routine purposes.

During the fourth year the student applies what he has learned during the preceding year in the laboratories of the various affiliated hospitals. He is also supplied with a laboratory outfit which is sufficiently complete to enable him to work independently of the general equipment. Special instructors are available during certain hours to give necessary assistance and advice.

Lectures	32 hours
Laboratory	96 hours
Total	128 hours

GASTRO-ENTEROLOGY

Julius Friedenwald, A.M., M.D	Professor of Gastro-Enterology
T. Fred Leitz, M.D	Clinical Professor of Gastro-Enterology
Theodore H. Morrison, M.D	Associate Professor of Gastro-Enterology
Maurice Feldman, M.D	Assistant Professor of Gastro-Enterology
Zachariah Morgan, M.D	Associate in Gastro-Enterology
Joseph Sindler, M.D	Associate in Gastro-Enterology
Samuel Morrison, M.D	Associate in Gastro-Enterology
M. S. Koppelman, M.D	Instructor in Gastro-Enterology
Z. Vance Hooper, M.D	Instructor in Gastro-Enterology
C. Victor Richards, M.D	Instructor in Gastro-Enterology
H. William Primakoff, M.D	Assistant in Gastro-Enterology
Walter Kohn, M.D	Assistant in Gastro-Enterology
Aaron C. Sollod, M.D	Assistant in Gastro-Enterology
Eli Contract, M.D	Assistant in Gastro-Enterology

Third Year. A series of 14 lectures is given covering the diseases of the digestive tract.

Fourth Year. Clinics and demonstrations to the class for one hour a week throughout the session. Dispensary instruction to small groups throughout the entire session. Practical instruction is given in the use of modern methods of study of the diseases of the gastro-intestinal tract.

PSYCHIATRY

R. M. Chapman, M.D	Professor of Psychiatry
Ralph P. Truitt, M.D	Associate Professor of Psychiatry
Harry Goldsmith, M.D	Assistant Professor of Psychiatry
Lawrence F. Woolley, M.D	Assistant Professor of Psychiatry
H. W. Newell, M.D	Assistant Professor of Psychiatry

Third Year. In the third year the student attends fifteen clinical lectures and five clinics which are designed to be introductory to the more intensive work in psychiatry in the fourth year.

Four Year. The class is divided into sections for clinical conferences on selected groups of cases. Each student may work for a short period as assistant in the Mental Hygiene Clinic, and thus gain practical experience of the problems of history-taking, examination, and the care of psychiatric patients.

PEDIATRICS

Edgar B. Friedenwald, M.D	Professor of Clinical Pediatrics
C. Loring Joslin, M.D	Professor of Clinical Pediatrics
John H. Traband, M.D	Assistant Professor of Pediatrics
Clarence E. Macke, M.D	Assistant Professor of Pediatrics
Albert Jaffe, M.D	Assistant Professor of Pediatrics
William J. Todd, M.D	Associate in Pediatrics
William G. Geyer, M.D	Associate in Pediatrics
Clewell Howell, M.D	Associate in Pediatrics
Samuel S. Glick, M.D	Associate in Pediatrics
A. H. Finkelstein, M.D	Associate in Pediatrics
F. Stratner Orem, M.D	Instructor in Pediatrics
Frederick Smith, M.D	Instructor in Pediatrics
R. M. Hening, M.D	Instructor in Pediatrics
Marie Kovner, M.D	Instructor in Pediatrics
Elizabeth Sherman, M.D	Instructor in Pediatrics
William G. Queen, M.D	Instructor in Pediatrics
M. Paul Byerly, M.D	Instructor in Pediatrics
W. J. Schmitz, M.D	Assistant in Pediatrics
Harry A. Rutledge, M.D	Assistant in Pediatrics
S. Kendig Wallace, M.D	Assistant in Pediatrics
Morris Fine, M.D	Assistant in Pediatrics
Samuel T. Helms, M.D	Assistant in Pediatrics
G. Bowers Mansdorfer, M.D	Assistant in Pediatrics

Walter A. Anderson, M.D	Assistant in Pediatrics
Israel P. Meranski, M.D	Assistant in Pediatrics
H. D. Franklin, M.D	Assistant in Pediatrics

Third Year. Instruction during the third year consists of a weekly lecture. The more important diseases of infancy and childhood are reviewed. The principles of infant feeding are presented in brief form.

Fourth Year. Weekly clinical lectures are given at which patients are shown to demonstrate the chief features of the diseases discussed. The students attend a weekly ward round on the pediatric service throughout their medical trimester. A special course on physical diagnosis in children is given. Sections of the class work daily in the Babies' and Children's Clinic.

NEUROLOGY

Irving J. Spear, M.D	Professor of Neurology
Andrew C. Gillis, A.M., M.D., LL.D	Professor of Neurology
G. M. Settle, A.B., M.D.,	Associate Professor of Neurology and Clinical Medicine
Milford Levy, M.D	Assistant Professor of Neurology
Leon Freedom, M.D	Assistant Professor of Neurology
H. S. Rubinstein, B.S., M.D., Ph.D	Instructor in Neurology
Ruth Foster, M.D	Assistant in Neurology

Third Year. Lectures and recitations one hour each week to the entire class. Instruction in clinical neurology two hours a week at the City Hospital to small groups. By means of didactic lectures and clinical conferences, there are considered the commoner types of diseases of the nervous system, the methods of neurological examination, and the relationship of signs and symptoms to pathological conditions. The material at the University and Mercy Hospitals is available.

Fourth Year. Clinical conference one hour each week to the entire class. This subject is taught at the University and Mercy Hospitals. All patients presented at these clinics are carefully examined; complete written records are made by the students who demonstrate the patients before the class. The patients are usually assigned one or two weeks before they are presented, and each student in the class must prepare one or more cases during the year.

Ward Class Instruction. In small sections at the University and Mercy Hospitals. In these classes the students come in close personal contact with the patients in the wards under the supervision of the instructor.

Dispensary Instruction. Small sections are instructed in the dispensaries of the University and Mercy Hospitals four afternoons each week. In this way students are brought into contact with nervous diseases in their early and late manifestations.

HYGIENE AND PREVENTIVE MEDICINE

Huntington Williams, M.D., Dr.P.H.	Professor of Hygiene and Public Health
William H. F. Warthen, M.D.	Associate in Hygiene and Public Health
Myron G. Tull, M.D.	Instructor in Hygiene and Public Health

Third Year. Lecture or demonstration each Monday from September to May and each Thursday during January, February and March. The course deals with the fundamentals of public health including administration, communicable disease and food control and environmental sanitation, including industrial hygiene; with major emphasis on the practice of preventive medicine and the relation of prevention to diagnosis and treatment. Small groups visit Sydenham Hospital periodically and are given practical instruction in the diagnosis, treatment and prevention of the communicable diseases.

Fourth Year. Demonstrations and discussion of public health work with emphasis on those phases which concern the practicing physician.

MEDICAL JURISPRUDENCE

H. J. Maldeis, M.D.	Associate Professor of Medical Jurisprudence Baltimore City Post Mortem Physician

Third Year. One hour each week for six weeks.

This course embraces a summary of the following: Proceedings in criminal and civil prosecution; medical evidence and testimony; identity and its general relations; sexual abnormalities; personal identity; impotence and sterility; rape; criminal abortions; signs of death; wounds in their medico-legal relations; death, natural and homicidal; malpractice, insanity; and medico-legal autopsies.

DEPARTMENT OF SURGERY

Arthur M. Shipley, Sc.D., M.D.	Professor of Surgery
Alexius McGlannan, A.M., M.D., LL.D.	Professor of Surgery
Nathan Winslow, A.M., M.D.	Professor of Clinical Surgery
Page Edmunds, M.D.	Professor of Traumatic Surgery
Walter D. Wise, M.D.	Professor of Clinical Surgery
Frank S. Lynn, M.D.	Professor of Clinical Surgery
Elliott H. Hutchins, A.M., M.D.	Professor of Clinical Surgery
Charles Reid Edwards, M.D.	Professor of Clinical Surgery
Charles Bagley, Jr., A.B., M.D.	Professor of Neurological Surgery
F. L. Jennings, M.D.	Professor of Clinical Surgery
Robert P. Bay, M.D.	Professor of Oral Surgery
Thomas R. Chambers, A.M., M.D.	Associate Professor of Surgery
R. W. Locher, M.D.	Associate Professor of Clinical Surgery
A. M. Evans, M.D.	Associate Professor of Surgery
Edward S. Johnson, M.D.	Associate Professor of Surgery
D. J. Pessagno, M.D.	Associate Professor of Surgery

Charles A. Reifschneider, M.D	Associate Professor of Surgery
E. H. Hayward, M.D	Associate in Surgery
Cyrus F. Horine, M.D	Associate in Surgery
I. O. Ridgley, M.D	Associate in Surgery
H. F. Bongardt, M.D	Associate in Surgery
Thomas B. Aycock, B.S., M.D	Associate in Surgery
Monte Edwards, M.D	Associate in Surgery
Richard G. Coblentz, M.D	Associate in Neurological Surgery
N. Clyde Marvel, M.D	Associate in Surgery
W. R. Johnson, M.D	Instructor in Surgery
E. M. Hanrahan, A.B., M.D	Instructor in Surgery
S. Demarco, M.D	Instructor in Surgery
Karl J. Steinmueller, A.B., M.D	Instructor in Surgery
W. W. Walker, M.D	Instructor in Surgery
J. J. Leyko, M.D	Instructor in Surgery
George H. Yeager, B.S., M.D	Instructor in Surgery
Dwight Mohr, M.D	Assistant in Surgery
William R. Geraghty, B.S., M.D	Assistant in Surgery
H. B. McElwain, M.D	Assistant in Surgery
J. G. Onnen, M.D	Assistant in Surgery
A. V. Buchness, M.D	Assistant in Surgery
T. J. Touhey, M.D	Assistant in Surgery
Clyde F. Karns, M.D	Assistant in Surgery
Paul Schenker, M.D	Assistant in Surgery
Robert W. Johnson, M.D	Assistant in Surgery
Frank K. Morris, A.B., M.D	Assistant in Surgery
J. Willis Guyton, M.D	Assistant in Surgery
Luther E. Little, M.D	Assistant in Surgery
Wm. N. McFaul, Jr., M.D	Assistant in Surgery
Samuel H. Culver, M.D	Assistant in Surgery
Simon H. Brager, M.D	Assistant in Surgery
C. W. Peake, M.D	Assistant in Surgery
J. Frank Hewitt, M.D	Assistant in Surgery
James C. Owings, M.D	Assistant in Surgery
Albert R. Wilkerson, M.D	Assistant in Surgery
J. W. Nelson, M.D	Assistant in Surgery
Julius Goodman, M.D	Assistant in Surgery
I. H. Trimble, M.D	Assistant in Surgery

The teaching is done in the anatomical laboratory, the dispensaries, wards, clinical laboratories and operating rooms of the University and Mercy Hospitals, and in the wards and operating rooms of the Baltimore City Hospitals.

Instruction is given by means of lectures, recitations, dispensary work, bedside instruction, ward classes, and clinics. The work begins in the second year, and continues throughout the third and fourth years.

Second Year

TOPOGRAPHIC AND SURGICAL ANATOMY. The course is designed to bridge the gap between anatomy in the abstract, and clinical anatomy as applied to the study and practice of medicine and surgery.

The teaching is done in the anatomical laboratory, and students are required to demonstrate all points, outlines, and regions on the cadaver. Underlying regions are dissected when necessary to bring out outlines and relations of structures.

DIDACTIC LECTURES. Two hours a week for one semester, augmented by demonstrations with specimens, charts, and cross sections. Dr. Monte Edwards.

LABORATORY. Five hours a week for 16 weeks. Dr. Monte Edwards assisted by Drs. Morris and Little.

PRINCIPLES OF SURGERY. This course includes history-taking, records of physical examinations and of operations and progress notes; the preparation of surgical dressing, suture materials and solutions. It includes inflammation, infections, ulcers, gangrene, fistulae and sinuses, hemorrhage, shock and tumors. Lectures and conferences, two hours per week for one semester, to the entire class. Dr. C. R. Edwards.

Third Year

GENERAL AND REGIONAL SURGERY. Principles of surgery and general surgery, three hours a week throughout the year to the entire class, lectures, recitations and clinics. Drs. Shipley and Wise.

The class is divided into groups and receives instruction in history-taking, gross pathology, and surgical diagnosis—at the bedside and in the deadhouse of the Baltimore City Hospitals. Drs. Shipley, Lynn, Reifschneider and Aycock.

OPERATIVE SURGERY. Instruction is given in operative surgery upon the cadaver and on dogs. The class is divided into sections, and each section is given practical and individual work under the supervision of the instructors. Dr. Lynn, assisted by Drs. Winslow, E. S. Johnson, Aycock, Demarco, Horine, Pessagno, Onnen, W. R. Johnson, Steinmueller, R. W. Johnson, McFaul, Culver and Brager.

FRACTURES AND DISLOCATIONS. This course consists of instruction in the various forms of fractures, dislocations and their treatment. There is a regular schedule of didactic lectures, which is supplemented by practical demonstrations in diagnosis and treatment. This practical work is given at the Mercy, University and Baltimore City Hospitals, Drs. Lynn and Jennings.

SURGICAL DISPENSARY. Under supervision, the student takes the history, makes the physical examinations, attempts the diagnosis, and, as far as possible, carries out the treatment of the ambulatory surgical patients in the University and in the Mercy Hospitals. Mercy Hospital—Drs. Dwight Mohr, Ridgely, Touhey, Bongardt and McElwain. University Hospital—Drs. Lynn, Winslow, Edwards and E. S. Johnson.

Fourth Year

Clinics. A weekly clinic is given at the Mercy and at the University Hospitals to one-half the class throughout the year. As far as possible this is a diagnostic clinic. Mercy Hospital—Dr. McGlannan. University Hospital—Dr. Shipley.

Surgical Pathology. A weekly exercise of one hour at Mercy Hospital for one semester at which specimens from the operating room and museum are studied in the gross and microscopically in relation to the case history. Dr. McGlannan.

Traumatic Surgery. Operative and post-operative treatment of accident cases, with instructions as to the relationship between the state, the employee, the employer, and the physician's duty to each. One hour a week to sections of the class throughout the year. Dr. Edmunds.

Clinical Clerkship. The personal study of assigned hospital patients, under supervision of the staffs of the University and Mercy Hospitals, history-taking, and physical examination of patients, laboratory examinations, attendance at operations and observation of post-operative treatment.

Ward Classes. Ward class instruction in small groups will consist of ward rounds, surgical diagnosis, treatment and the after-care of operative cases. Mercy Hospital—Drs. McGlannan, Wise, Elliot Hutchins, Evans and Jennings. University Hospital—Drs. Shipley, Edmunds, Lynn and Edwards.

ANAESTHESIA

S. Griffith Davis, A.B., M.D.	Professor of Anaesthesia
E. Hollister Davis, A.B., M.D.	Assistant in Anaesthesia
Mary J. O'Brien, R.N.	Anaesthetist

Third Year

Lectures on the general physiology of anaesthesia, with consideration of special physiology of each anaesthetic agent. Methods of induction and administration of anaesthesia. Factors influencing the selection of the anaesthetic and types of anaesthetic agents. Preparation and care of the anaesthetized patient.

The lectures are correlated with practical demonstrations during operative clinics at the City Hospitals.

Fourth Year

During operative clinics in both surgery and gynecology each student will be given practical instruction in the administration of anaesthetics and will be required to record such changes as take place in blood pressure, pulse and respiration.

DERMATOLOGY

Melvin S. Rosenthal, M.D.	Professor of Dermatology
Harry M. Robinson, M.D.	Professor of Clinical Dermatology
John R. Abercrombie, A.B., M.D.	Associate in Dermatology
Francis Ellis, A.B., M.D.	Associate in Dermatology
Arthur C. Monninger, M.D.	Instructor in Dermatology
M. Harold Goodman, A.B., M.D.	Instructor in Dermatology

Clinical conferences are held one hour each week with the entire class. This course consists of demonstrations of the common diseases of the skin in addition to a number of lectures on the general principles of dermatology. During the first semester this conference will be conducted by Dr. Rosenthal. The second semester will be in charge of Dr. Robinson.

Dispensary instruction in the diagnosis and treatment of skin diseases is given daily at the University Hospital by Drs. Robinson, Ellis, Goodman and Monninger. A similar course of instruction is given at the Mercy Hospital on Tuesdays, Thursdays and Saturdays by Dr. Rosenthal. These courses are devised for the specific purpose of giving the student close and intimate contact with skin diseases. Students are assigned cases and under supervision are permitted to diagnose and administer accepted treatment.

ORTHOPAEDIC SURGERY

Allen Fiske Voshell, A.B., M.D.	Professor of Orthopaedic Surgery
Albertus Cotton, A.M., M.D.	Professor of Orthopaedic Surgery
Compton Riely, M.D.	Clinical Professor of Orthopaedic Surgery
Moses Gellman, B.S., M.D.	Associate Professor of Orthopaedic Surgery
Harry L. Rogers, M.D.	Associate Professor of Orthopaedic Surgery
I. H. Maseritz M.D.	Assistant in Orthopaedic Surgery
J. G. Benesunes, M.D.	Assistant in Orthopaedic Surgery
Egbert L. Mortimer, Jr., M.D.	Assistant in Orthopaedic Surgery

In this course didactic, clinical, bedside and out-patient instruction is given. This instruction is provided in the University Hospital Amphitheatre, Mercy Hospital and Dispensary, Kernan Hospital and Industrial School for Crippled Children at "Radnor Park" and in the Dispensary of the University Hospital.

Lectures or clinics are held once a week at each of the hospitals named in town. In addition, a weekly bedside clinic is held for small sections of the class at "Radnor Park" and Mercy Hospital. Daily teaching in the Dispensary is stressed.

The course covers instruction in the special methods of examination, pathology, diagnosis and treatment in this specialty.

Brief outlines and demonstrations are also given of the apparatus employed in Physiotherapy, Muscle Training and Corrective Gymnastics.

ROENTGENOLOGY

Henry J. Walton, M.D.	Professor of Roentgenology
Albertus Cotton, A.M., M.D.	Professor of Roentgenology
Eugene L. Flippin, M.D.	Associate in Roentgenology

During the academic year small groups of the fourth year class are given weekly demonstrations in the diagnostic and therapeutic uses of the Roentgen rays. An effort is made to familiarize the student with the appearance of normal Roentgenograms, after which instruction is given in the interpretation of the more common pathological lesions seen on the Roentgen films and fluoroscopic screen. The history, physics and practical application of the Roentgen rays are alluded to, but not stressed. Two conferences are held each week with the medical and pathological departments, which are also open to members of the fourth year class.

DISEASES OF THE NOSE AND THROAT

Edward A. Looper, M.D., D.Oph.	Professor of Diesases of the Nose and Throat
Waitman F. Zinn, M.D.	Clinical Professor of Diseases of the Nose and Throat
Franklin B. Anderson, M.D.	Associate in Diseases of the Nose and Throat
R. F. McKenzie, M.D.	Associate in Diseases of the Nose and Throat
Thomas O'Rourk, M.D.	Instructor in Diseases of the Nose and Throat
Birckhead McGowan, M.D.	Assistant in Diseases of the Nose and Throat

Third Year. Instruction to entire class is given in the common diseases of the nose and throat, attention being especially directed to infections of the accessory sinuses, the importance of focal infections in the etiology of general diseases and modern methods of diagnosis. Lectures illustrated by lantern slides are given one hour weekly throughout the second semester by Dr. Looper.

Fourth Year. Dispensary instruction one and one-half hours daily, to small sections at the University and the Mercy Hospitals. The student is given opportunity to study, diagnose and treat patients under supervision. Ward classes and clinical demonstrations are given in periods of one and one-half hours weekly throughout the session in the University and the Mercy Hospitals.

The Looper Clinic, recently established in the University Hospital for bronchoscopy and esophagoscopy, affords unusual opportunities for students to study diseases of the larynx, bronchi and esophagus. The clinic is open to students daily from 2 to 4 P.M., under direction of Dr. Looper.

The Mercy Hospital Clinic for bronchoscopy and esophagoscopy is under the direction of Dr. Zinn. In these two clinics the etiology, symptomatology, diagnosis and treatment of foreign bodies in the air and food passages, as well as bronchoscopy, are taught to students, as an aid in the diagnosis and treatment of diseases of the lungs.

GENITO-URINARY SURGERY

W. H. Toulson, A.B., M.Sc., M.D.	Professor of Genito-Urinary Surgery
A. J. Gillis, M.D.	Clinical Professor of Genito-Urinary Surgery
Austin H. Wood, M.D.	Associate in Genito-Urinary Surgery
L. J. Millan, M.D.	Associate in Genito-Urinary Surgery
K. D. Legge, M.D.	Associate in Genito-Urinary Surgery
L. K. Fargo, M.D.	Associate in Genito-Urinary Surgery
Samuel T. Helms, M.D.	Instructor in Genito-Urinary Surgery
John F. Hogan, M.D.	Instructor in Genito-Urinary Surgery

Third Year. Eight hours to the entire class. This is a diadactic course in the principles of Genito-Urinary Surgery. Dr. Toulson.

Fourth Year. The course includes urethroscopy, cystoscopy, ureter catheterization, renal function tests, urography, urine cultures, etc. The teaching consists of clinics in the amphitheater, ward rounds, and attendance by members of the senior class upon out-patients in the dispensary. The dispensary classes are carried on both at the Mercy and the University Hospital dispensaries. Every variety of venereal disease is here encountered and this wealth of material is available for teaching purposes. In addition to this, a cystoscopic clinic is conducted in another part of the dispensary, where the students are given practical instruction in the modern diagnostic methods.

DISEASES OF THE RECTUM AND COLON

G. Milton Linthicum, A.M., M.D.	Professor of Diseases of Rectum and Colon
Charles F. Blake, A.M., M.D.	Professor of Diseases of Rectum and Colon
J. Dawson Reeder, M.D.	Clinical Professor of Diseases of Rectum and Colon
Monte Edwards, M.D.	Associate in Diseases of Rectum and Colon

Third Year. Six hours to the entire class. This course is for instruction in the diseases of the colon, sigmoid flexure, rectum and anus, and will cover the essential features of the anatomy and physiology of the large intestine as well as the various diseases to which it is subject. Dr. Linthicum and Dr. Edwards.

Fourth Year. Ward and dispensary instruction is given in the University and Mercy Hospitals, where different phases of the various diseases are taught by direct observation and examination. The use of the proctoscope and sigmoidoscope in the examination of the rectum and sigmoid is made familiar to each student. Mercy Hospital—Dr. Blake. University Hospital—Drs. Linthicum, Reeder and Monte Edwards.

OTOLOGY

J. W. Downey, M.D	Professor of Otology
Franklin B. Anderson, M.D	Associate in Otology
F. A. Holden, M.D	Instructor in Otology
Benjamin S. Rich, M.D	Assistant in Otology
Birckhead McGowan, M.D	Assistant in Otology

The course in otology is planned to give a practical knowledge of the anatomy and physiology of the ear, and its proximity and relationship to the brain and other vital structures. The inflammatory diseases, their etiology, diagnosis, treatment and complications are particularly stressed, with emphasis upon their relationship to the diseases of children, head-surgery and neurology.

Third Year. The entire class is given instruction by means of talks, anatomical specimens and lantern slides.

Fourth Year. Small sections of the class receive instruction and make personal examinations of patients under the direction of an instructor. The student is urged to make a routine examination of the ear in his ward work in general medicine and surgery.

NEUROLOGICAL SURGERY

Charles Bagley, Jr., A.B., M.D	Professor of Neurological Surgery
Richard G. Coblentz, M.D	Associate in Neurological Surgery
William R. Geraghty, B.S., M.D	Instructor in Neurological Surgery
James G. Arnold, Jr., A.B., M.D	Hitchcock Fellow in Neurological Surgery

Third Year. The course covers instruction in diagnosis and treatment of surgical conditions of the brain, spinal cord, and the peripheral nerves. Eight lectures are given to the entire class and conferences are held from time to time. Dr. Bagley.

Fourth Year. Weekly ward rounds and conferences are given at the University Hospital. Drs. Bagley and Coblentz.

ONCOLOGY

J. Mason Hundley, Jr., M.A., M.D	Associate in Gynecology
Grant E. Ward, A.B., M.D	Instructor in Surgery

Every facility for the diagnosis and treatment of neoplastic diseases is available; this includes electro-surgery, radium therapy and deep X-ray therapy.

An out-patient clinic is held twice weekly which affords an opportunity for instruction to a limited number of students. The gynecological problems are under the supervision of Dr. Hundley, and the general surgical conditions are under the direction of Dr. Ward.

Instruction, other than dispensary teaching, is given to small groups of students, for one hour a week, in the history, physics and practical application of radium. Drs. Ward and Hundley.

ORAL SURGERY

Robert P. Bay, M.D	Professor of Oral Surgery
Horace M. Davis, D.D.S	Professor of Exodontia
Charles A. Reifschneider, M.D	Associate Professor of Surgery and Oral Surgery
Brice M. Dorsey, D.D.S	Instructor in Exodontia

This section in the Department of Surgery is established for the teaching of both medical and dental students. A new subdivision in the Dispensary has also been established, and beds will be provided in the University Hospital for the care of patients, who will be available for the teaching of students from both schools.

Senior year: clinics weekly.

Ward instruction and group teaching in dispensary. Instruction includes diagnosis and treatment of diseases of face, mouth and jaws.

DEPARTMENT OF OBSTETRICS

J. M. H. Rowland, M.D	Professor of Obstetrics
L. H. Douglass, M.D	Professor of Clinical Obstetrics
J. McFarland Bergland, M.D	Associate Professor of Obstetrics
Emil Novak, M.D	Associate Professor of Obstetrics
E. P. Smith, M.D	Associate in Obstetrics
J. G. M. Reese, M.D	Associate in Obstetrics
M. A. Novey, A.B., M.D	Associate in Obstetrics
Isadore A. Siegel, A.B., M.D	Associate in Obstetrics
E. P. H. Harrison, A.B., M.D	Associate in Obstetrics
Margaret B. Ballard, M.D	Assistant in Obstetrics
E. S. Edlavitch, M.D	Assistant in Obstetrics
Kenneth B. Boyd, M.D	Assistant in Obstetrics
George L. Wissig, M.D	Assistant in Obstetrics
Frank K. Morris, M.D	Assistant in Obstetrics
Dudley P. Bowe, M.D	Assistant in Obstetrics

Third Year. Three lectures and recitations each week by Drs. Bergland, Novak, Douglass and Rowland to entire class.

Manikin Work. Drs. Smith and Edlavitch to sections of class at Mercy Hospital, and Drs. Douglass, Siegel, Harrison and Rowland at University Hospital.

Fourth Year. Clinical Conference. One hour each week. Drs. Rowland and Douglass.

Ward Classes. Six hours per week for five weeks to sections of class at University Hospital. Drs. Douglass, Reese and Novey.

Each member of the Senior class is required to deliver ten women in their homes under supervision of the teaching and resident staff.

DEPARTMENT OF GYNECOLOGY

William S. Gardner, M.D	Professor of Gynecology
Abram S. Samuels, M.D	Associate Professor of Gynecology
George A. Strauss, Jr., M.D	Associate in Gynecology
R. G. Willse, M.D	Associate in Gynecology
Thomas K. Galvin, M.D	Associate in Gynecology
J. Mason Hundley. Jr., M.A., M.D	Associate in Gynecology
Leo Brady, M.D	Associate in Gynecology
E. S. Edlavitch, M.D	Assistant in Gynecology

Third Year. Diadactic Work. A course of thirty lectures and recitations.

Fourth Year. Clinical Work. Six hours weekly for one trimester. In this course the student writes the clinical history of each patient in the ward and makes a general physical examination, including the blood and urine, before the patient is brought before the class. A pelvic examination is made by six students, and any operation required is then done before a section of the class small enough to see clearly what is being done and how it is done. On a subsequent day the whole group examines, microscopically, sections prepared from material removed from patients that have been before them.

DEPARTMENT OF OPHTHALMOLOGY

Clyde A. Clapp, M.D	Professor of Ophthalmology
M. Randolph Kahn, M.D	Clinical Professor of Ophthalmology
H. K. Fleck, M.D	Associate Professor of Ophthalmology
R. D. West, M.D	Associate in Ophthalmology
Henry F. Graff, A.B., M.D	Associate in Ophthalmology
Jonas Friedenwald, A.B., M.D	Lecturer in Ophthalmic Pathology
Joseph I. Kemler, M.D	Associate in Ophthalmology
F. A. Holden, M.D	Instructor in Ophthalmology
Frank A. Pacienza, M.D	Instructor in Refraction
John G. Runkle, M.D	Assistant in Ophthalmology
Thomas O'Rourk, M.D	Assistant in Ophthalmology

Third Year. Second semester. Dr. Kahn will give a course reviewing the anatomy and physiology of the eye and the methods used in making the various examinations. Errors of refraction and their effect upon the general system will be explained. Weekly section work, demonstrating the use of the ophthalmoscope, will be carried on during the entire session.

Fourth Year. Clinics and demonstrations in diseases of the eye, weekly, for one year. Dr. Clapp.

This course consists of lectures upon the diseases of the eye, with particular reference to their diagnosis and relation to general medicine. Special lectures will be given upon vascular changes in the eye and upon the pathology of the eye. Some operations will be demonstrated by motion pictures.

Weekly ward classes at the University, The Baltimore Eye, Ear and Throat and Mercy Hospitals during which the eye grounds in the various medical and surgical conditions are demonstrated. Drs. Fleck, West, Kemler and Graff.

Also daily demonstrations in the taking of histories and the diagnosis and treatment of the various conditions as seen in the dispensary.

Third Year—	
Lectures	20 hours
Ophthalmoscopy	10 hours
Total	30 hours

Fourth Year—	
Lectures and demonstrations	26 hours
Clinical work	20 hours
Total	46 hours

DEPARTMENT OF ART AS APPLIED TO MEDICINE

Carl Dame Clarke........................Associate in Art as Applied to Medicine

This department is maintained for the purpose of supplying pictoria and plastic illustrations for visual teaching in the classrooms of the University and for publications in scientific periodicals.

Special courses of instruction are given to qualified students.

HISTORY OF MEDICINE

John Rathbone Oliver, M.D., Ph.D.

Professor of the History of Medicine

In this Department a series of weekly lectures is given each year in March, April and May. The course is planned so that the entire field of medical history may be covered in four years. In this way any medical student who has attended the lectures during his four years course at the medical school has been given at least an outline of the history of his profession. During the past academic year the lectures have been devoted to the medicine of Greece and of the Roman Empire, beginning with the Pre-Hippocratic Period and ending with Galen. The lectures are illustrated with lantern slides and all the important books which bear on the subject of each lecture are brought into the lecture room and passed around among the students. This year we have been fortunate in having access to a series of very valuable slides illustrating the development of hospitals in connection with the Knights of St. John of Jerusalem, St. Vincent de Paul, and others.

In the session of 1934–35, lectures will begin with the Medicine of the Middle Ages and will end with Harvey and the discovery of the circulation of the blood. The head of this department is always ready to welcome any student who is interested in medical history and will be glad to advise him as to his reading or to suggest subjects for special study.

FIRST YEAR SCHEDULE

*FIRST SEMESTER, SEPTEMBER 24, 1934 TO JANUARY 26, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 10.00	*Sect. A.–A. H.* *Sect. B.-Adm. 2*	*A–A. H.* *B–Adm. 2*	*A–A. H.* *B–29 S. Greene*	*A–A. H.* *B–Adm. 1*	*A–A. H.* *B–Adm. 1*	*A. H.* *A. H.*
10.00 to 12.00	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory
12.00 to 1.00	Lunch	Lunch	Lunch	Lunch	Lunch	
1.00 to 2.00	*Sect. A.–A. H.* *Sect. B.–Adm. 1*	*A–A. H.* *B–C. H.*	*A–A. H.* *B–Adm. 1*	*A–A. H.* *B–Adm. 1*	*A–C. H.* *B–Adm. 2*	
2.00 to 5.00	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

* All scheduled classes are in Gross Anatomy.

SECOND SEMESTER, JANUARY 29, TO MAY 25, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 10.00		Biological Chemistry	Biological Chemistry	Biological Chemistry	Biological Chemistry	
10.00 to 11.00	Introductory Physiology *A. H.*	Laboratory	Laboratory	Laboratory	Laboratory	
11.00 to 12.00	Biological Chemistry *C. H.*	*Sect. A.*	*Sect. B.*	*Sect. A.*	*Sect. B.*	
12.00 to 12.50	Lunch	Lunch	Lunch	Lunch	Lunch	
12.50 to 1.50	Biological Chemistry *Adm. 1*	Biological Chemistry *C. H.*	Biological Chemistry *C. H.*	Biological Chemistry *C. H.*	Biological Chemistry *C. H.*	
2.00 to 3.00	Histology and Embryology	Histology and Embryology	Introductory Physiology *Adm. 1*	Histology and Embryology	Histology and Embryology	
3.00 to 5.00	Laboratory	Laboratory		Laboratory	Laboratory	

Locations of Lecture Halls and Laboratories:

Adm. 1—First Floor, Administration Building, Lombard and Greene Streets.
Adm. 2—Second Floor, Administration Building, Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, N. E. Cor. Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, N. E. Cor. Lombard and Greene Streets.
Anatomy Laboratory—Third Floor, Gray Laboratory, Lombard and Greene Streets.
Biological Chemistry Laboratory—Third Floor, 31 S. Greene Street.
Histology and Embryology Laboratory—32–34 S. Paca Street, Sixth Floor.

Mid-Year Examinations—January 21–26, 1935
Final Examinations—May 20–25, 1935

(This schedule is subject to revision for 1934–1935)

SECOND YEAR SCHEDULE

FIRST SEMESTER, SEPTEMBER 24, 1934 TO JANUARY 26, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00–10.00	Pharmacology *Adm. 1*	Pharmacology *Adm. 1*	Medicine *Adm. 1*	Laboratory *Physiology *Sect. A* Pharmacology *Sect. B*	Laboratory *Physiology *Sect. B* Pharmacology *Sect. A*	
10.00–11.00	Physiology *Adm. 1*	Physiology *Adm. 1*	Physiology *Adm. 1*			
11.00–12.00	Pathology *A. H.*	Pathology *A. H.*	Bacteriology *A. H.*			
12.00–12.30	Lunch	Lunch	Lunch	Lunch	Lunch	
12.30–1.30	Bacteriology Laboratory	Bacteriology Laboratory	Bacteriology Laboratory	Bacteriology Laboratory		
1.30–2.30					Physiology *Adm. 1*	
2.30–3.00				*Physiology Laboratory *Sect. B* (2.30–5.30)	*Physiology Laboratory *Sect. A* (2.30–5.30)	
3.30–5.30						

* Physiology Laboratory begins October 30, 1933.

SECOND SEMESTER, JANUARY 29 TO MAY 25, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30– 9.30	Surgery *Adm. 1*	Surgery *Adm. 1*	Surgical Anatomy *Adm. 1*	Laboratory Physiology *Sect. A* Pharmacology *Sect. B*	Laboratory Physiology *Sect. B* Pharmacology *Sect. A*	Pharmacology *Adm. 1*
9.30– 10.30	Pharmacology *Adm. 1*	**Physiology *Adm. 1*	Surgical Anatomy Laboratory			Physiology *Adm. 1*
10.30– 11.30	Pathology *A. H.*	Pathology *A. H.*				Immunology *C. H.*
11.30– 12.00	Lunch	Lunch	Lunch	Lunch	Lunch	Physiology *C. H.* (11.30–12.30)
12.00– 2.00	Pathology Laboratory	Pathology Laboratory	Pathology Laboratory	Pathology Laboratory	Pathology Laboratory	Lunch (12.30–1.00)
2.00– 3.00	Surgical Anatomy *Adm. 1*	Immunology Laboratory	Immunology Laboratory			Medical Clinic *Amp.* (1.00–2.00)
3.00– 5.00	Surgical Anatomy Laboratory (3.00–5.30)			Physical Diagnosis *Sect. A* (3.00–5.30) Physiology Laboratory *Sect. B* (2.00–5.00)	Physical Diagnosis *Sect. B* (3.00–5.30) Physiology Laboratory *Sect. A* (2.00–5.00)	

** Physiology Course ends April 27, 1935.

Locations of Lecture Halls and Laboratories:

Adm. 1—First Floor, Administration Building, Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, Lombard and Greene Streets.
Amp.—Amphitheatre, University Hospital, Lombard and Greene Streets.

Laboratories:

Bacteriology—Second Floor, 31 S. Greene Street.
Immunology—Second Floor, 31 S. Greene Street.
Pathology—Second Floor, 31 S. Greene Street.
Pharmacology—Second Floor, Gray Laboratory, Lombard and Greene Streets.
Physiology—First Floor, Gray Laboratory, Lombard and Greene Streets.
Surgical Anatomy—Third Floor, Gray Laboratory, Lombard and Greene Streets.

Mid-Year Examinations—January 21–26, 1935
Final Examinations—May 20–25, 1935

(This schedule is subject to revision for 1934–1935)

THIRD YEAR SCHEDULE

SEPTEMBER 24, 1934 TO MAY 25, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30 to 9.30	Therapeutics *C. H.*	Pathology *C. H.*	Medicine *C. H.*	Medicine *C. H.*	Pathology *C. H.*	Medicine *C. H.*
9.30 to 10.30	Obstetrics *C. H.*	Surgery *C. H.*	Obstetrics *C. H.*	Surgery *C. H.*	Medicine *C. H.*	Surgery *C. H.*
10.30 to 1.00	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch
1.00 to 2.00	Fractures & Dislocations *Amp.* **Nose-Throat *C. H.*	Medical Clinic *Amp.*	Neurology *P. & S. 34*	(12.45–1.45) Gynecology *29 S. Greene*	Obstetrics *A. H.*	Transfer
2.15 to 3.15	Pathology Laboratory	Pathology Laboratory	(2.30–4.30) *Section A* Clinical Medicine, Surgery, Gross Pathology. *at Baltimore City Hospitals*	(2–3) Clinical Pathology *29 S. Greene*	2.15 to 5.15 Clinical Pathology Laboratory	(2–4) *Section B* Clinical Medicine, Surgery, Gross Pathology. *at Baltimore City Hospitals*
3.15 to 4.15				(3–4) *Eye and Ear *29 S. Greene*		
4.15 to 5.15	Preventive Medicine *C. H.*	Pediatrics *C. H.*	(2.15–4.15) *Section B* Group Work Ophthalmoscopy *B. E. H.* Practical Obstetrics *Univ. Hosp.*	(4–5) Preventive Medicine, Legal Medicine, Mental Hygiene. *29 S. Greene*		

From 10.30 A. M. to 1.00 P. M., the class is divided into two sections, one section reporting at Calvert and Saratoga Streets, the other at Lombard and Greene Streets.

C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.

A. H.—Anatomical Hall—N. E. Cor. Lombard and Greene Streets.

Amp.—Amphitheatre—University Hospital, S. W. Cor. Lombard and Greene Streets.

P. & S.—N. W. Cor. Calvert and Saratoga Streets. Rooms indicated on Second Floor.

B. E. H.—Baltimore Eye, Ear and Throat Hospital, 1214 Eutaw Place.

At the beginning of the second semester Section "A" at Baltimore City Hospital on Saturdays, 2–4 P. M., and University Hospital on Wednesdays, 2.15–4.15 P. M.; Section "B" at Baltimore City Hospital on Wednesdays, 2.30–4.30 P. M.

Mid-Year Examinations—January 21–26, 1935
Final Examinations—May 13–25, 1935.

* Ear—First semester.
* Eye—Second semester.
** Nose-Throat—Second semester.

(This schedule is subject to revision for 1934–1935)

FOURTH YEAR SCHEDULE

SEPTEMBER 24, 1934 TO MAY 25, 1935

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 11.00	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology
11.00 to 12.00	Orthopaedic Surgery *Univ. Sec. Amp.* *P. & S. Sec. 51*	Medical Clinic *Univ. Sec. Amp.* Surgical Pathology *P. & S. Sec. 40*	Clinical Pathological Conference *Univ. Sec. C. H.* *P. & S. Sec. 34*	Surgical Clinic *Univ. Sec. Amp.* *P. & S. Sec. 51*	Medical Clinic *Univ. Sec. Amp.* *P. & S. Sec. 34*	Pediatric Clinic *Univ. Sec. Amp.* *P. & S. Sec. 34*
12.00 to 2.00	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary
2.15 to 3.15	Dermatology Clinic (Full Class at Univ. Hosp.) *Amp.*	Neurology Clinic *Univ. Sec. Amp.* *P. & S. Sec. 34*	Eye and Ear Clinic (Full Class at Univ. Hosp.) *Amp. & C. H.*	Obstetrical Clinic (Full Class at Univ. Hosp.) *Amp.*	Gastro-Enterology Clinic (Full Class at Univ. Hosp.) *Amp.*	
3.30 to 5.00	*P. & S. Sect.* Ward Classes Medicine Eye and Ear	*P. & S. Sect.* Ward Classes Medicine Orthopedics	*P. & S. Sect.* Ward Classes Medicine Nose and Throat Preventive Medicine	*P. & S. Sect.* Ward Classes Medicine Proctology Pediatrics	*P. & S. Sect.* Ward Classes Neurology Roentgenology Psychiatry	
3.30 to 5.00	*Univ. Sect.* Ward Classes Medicine Roentgenology Neurological Surgery	*Univ. Sect.* Ward Classes Therapeutics Proctology Oncology (3.30–4.30) (*29 S. Greene St.*)	*Univ. Sect.* Ward Classes Medicine Urology Eye and Ear	*Univ. Sect.* Ward Classes Medicine Nose and Throat Physical Therapeutics	*Univ. Sect.* Ward Classes Neurology Psychiatry Orthopedic Surgery (*Kernan Hospital*)	
5–6				*History of Medicine C. H.		

* March, April and May, 5–6 p. m.

The Senior Class is divided into two sections, which report, one at Lombard and Greene Streets, the other at Calvert and Saratoga Streets, for one semester each, then rotate.

Each section of the class is divided into three groups—Medical, Surgical, and Special. These groups will rotate on the following dates:

First Semester		*Second Semester*	
1st period	Sept. 24–Oct. 27	1st period	Jan. 30–Mch. 2
2nd period	Oct. 29–Dec. 1	2nd period	Mch. 4–Apr. 6
3rd period	Dec. 3–Jan. 19	3rd period	Apr. 8–May 11

C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.
Amp.—Amphitheatre—University Hospital.
P. & S., 34—Second Floor, Calvert and Saratoga Streets.
P. & S., 40, 51—Fourth Floor, Calvert and Saratoga Streets.

For sub-sections of P. & S. ward classes, 3.30 to 5.00 p. m., see supplementary schedule at Mercy Hospital. For sub-sections of U. H. ward classes, 3.30 to 5.00 p. m., see Medical School Bulletin Board.

Mid-Year Examinations—January 21–26, 1935

Final Examinations—May 13–25, 1935

(This schedule is subject to revision for 1934–1935)

REQUIREMENTS FOR MATRICULATION

Admission to the course in medicine is by a completed Medical Student Certificate issued by the Registrar of the University of Maryland. This certificate is obtained from the Registrar on the basis of satisfactory educational credentials, and is essential for admission to any class.

The minimum requirements for the issuance of the Medical Student Certificate are:

(a) The completion of a standard four-year secondary school curriculum (it is advisable that a student take besides four years of English, courses in Latin; chemistry; physics; mathematics, including trigonometry; biology; and either French or German), or the equivalent in entrance examinations, and at least:

(b) Two years or sixty semester hours of college credits (exclusive of military science and physical education), including chemistry, physics, biology, English, and a modern foreign language. (See details below.)

Women are admitted to the School of Medicine of this University.

DETAILS OF THE COLLEGE REQUIREMENT

a. The preliminary college course shall extend through two college sessions of at least thirty-two weeks each, exclusive of holidays.

b. In excellence of teaching and in content, the work of this preliminary college course shall be equal to the work done in the freshman and sophomore years in standard colleges and universities.

c. This preliminary college course shall include courses in chemistry, physics, biology, English, and a modern foreign language, each course to embrace at least the credit shown in the schedule following:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours Required

Required Courses:	*Semester Hours*
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English Composition and Literature (d)	6
Modern Foreign Language (e)	6
Other Non-Science Subjects	6

Courses Strongly Urged:

Additional English
Additional Foreign Language.
Comparative Vertebrate Anatomy, Embryology, Histological Technique.
Quantitative Analysis or other Advanced Chemistry.

Advanced Mathematics, including Algebra and Trigonometry.
Psychology, Logic, Social Science, Economics, History, Political Science.

A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes' duration net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

(a) CHEMISTRY. Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work; and four semester hours in organic chemistry, including two semester hours of laboratory work. In the interpretation of this rule, work in qualitative analysis may be counted as general inorganic chemistry.

(b) *Physics.* Eight semester hours required, of which at least two must be laboratory work. This course presupposes a knowledge of plane trigonometry.

(c) BIOLOGY. Eight semester hours required, of which four must be laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(d) ENGLISH COMPOSITION AND LITERATURE. The usual introductory college course of six semester hours, or its equivalent, is required.

(e) FOREIGN LANGUAGE. Six semester hours minimum requirement. A A reading knowledge of a modern foreign language is very strongly urged. French and German have the closest bearing upon modern medical literature.

COMBINED COURSE IN ARTS AND SCIENCES, AND MEDICINE

A combined seven years' curriculum is offered leading to the degree of Bachelor of Science and Doctor of Medicine. The first three years are taken in residence in the College of Arts and Sciences at College Park, and the last four years in the School of Medicine in Baltimore. (See University catalogue for details of quantitative and qualitative premedical course requirements.)

Upon the successful completion of the first year in the School of Medicine, and upon the recommendation of the Dean, the degree of Bachelor of Science may be conferred by the College of Arts and Sciences.

Students are urged to consider carefully the advantages this combination course offers over the minimum requirements of two years. By completing three years the training may be gradually broadened by a wider latitude in the election of courses in the arts subjects.

POST-GRADUATE STUDENTS

Graduates in medicine desiring to take the work of the senior year without being candidates for the degree, and, therefore, without examination, may receive a certificate of attendance on completing the full course satisfactorily.

The requirements for graduates in medicine admitted to the fourth-year class as candidates for the degree of Doctor of Medicine are the same as those enforced against undergraduates admitted to advanced standing.

RULES

1. All students are required to take the spring examinations unless excused by the Dean. No student will be permitted to advance from a lower to a higher class with conditions.

2. Should a student be required to repeat any year in the course, he must pay regular fees.

3. A student failing in final examinations for graduation at the end of the fourth year will be required to repeat the entire course of the fourth year and to take examination in such other branches as may be required should he again be permitted to enter the school as a candidate for graduation.

4. The general fitness of a candidate for graduation as well as the results of his examination will be taken into consideration by the Faculty.

5. All students entering the School of Medicine of the University of Maryland are required to provide themselves with microscopes of a satisfactory type.

A standard microscope of either Bausch & Lomb, Leitz, Spencer, or Zeiss make, fitted with the following attachments, will fill the requirements:

Triple nose piece: 10 x and 5 x Oculars
Wide aperture stage: 16 mm. and 4 mm. Objectives
Quick Screw condenser (Abbe): 1.9 mm. 125 N.A. Oil Immersion Lens

All used microscopes are subject to inspection and approval before their use in the laboratory is permitted. The student is cautioned against the purchase of such an instrument before its official approval by the school.

STUDENTS MUST BE PREPARED TO PURCHASE MICROSCOPES AT THE BEGINNING OF THE FIRST YEAR

All the above rules, as well as the fees stated below, relate to the year ending June 1st, 1935 only. The right is reserved to make changes in the curriculum, the requirements for graduation, the fees and in any of the regulations whenever the Faculty deems it expedient.

FEES

Matriculation fee (paid once)	$10.00
Tuition fee (each year) for residents of Maryland	375.00
Tuition fee (each year) for non-residents	550.00
Laboratory fee (each year)	25.00
Special and re-examination fee	5.00
Graduation fee	15.00

No fees are returnable.

The above fees apply to all students who matriculate in the School of Medicine in any class for the session beginning September 24th, 1934.

All students, after proper certification, are required to register at the Office of the Registrar. (See calendar in front part of this bulletin for dates for the payments of fees, and the note regarding late registration fee.)

The matriculation fee is payable at the time the applicant is offered acceptance as a student.

The laboratory fee and one-half of the tuition fee for the year shall be paid at the time of the first semester registration, and one-half of the tuition fee shall be paid at the second semester registration date.

Failure to meet these conditions will automatically debar the student from attendance on classes and other privileges of the University.

When offering checks in payment of tuition and other fees, students are requested to have them drawn in the exact amount of such fees. Personal checks whose face value is in excess of the fees due will be accepted for collection.

DEFINITION OF RESIDENCE STATUS OF STUDENTS*

Students who are minors are considered to be resident students if, at the time of their registration, their parents* have been residents of this State for at least one year.

Adult students are considered to be resident students if, at the time of their registration, they have been residents of this State for at least one year, provided such residence has not been acquired while attending any school or college in Maryland.

The status of the residence of a student is determined at the time of his first registration in the University and may not thereafter be changed by him unless, in the case of a minor, his parents* move to and become legal residents of this State by maintaining such residence for at least one full calendar year. However, the right of the student (minor) to change from a non-resident to a resident status must be established by him prior to registration for a semester in any academic year.

* The term "parents" includes persons who, by reason of death or other unusual circumstances, have been legally constituted the guardians of or stand in *loco parentis* to such minor students.

STATE MEDICAL STUDENT QUALIFYING CERTIFICATES

Candidates for admission who live in or expect to practice medicine in Pennsylvania, New Jersey or New York, and who are accepted as students by the University of Maryland, must apply, immediately after having been accepted, to their respective state board of education for a medical student qualifying certificate (Pennsylvania and New Jersey) or an approval of application for a medical student qualifying certificate (New York).

These certificates will be kept on file in the Office of the Registrar, University of Maryland, during the period of attendance in the School of Medicine.

MEDICAL CARE OF STUDENTS

The Medical Council has made provision for the systematic care of students in the Medical School, according to the following plan:

1. *Preliminary Examination*—All new students will be examined during the first week of the semester. Notice of the date, time, and place of the examination will be announced to the classes on the bulletin board. The passing of this physical examination is necessary before final acceptance of any student.

2. *Medical Attention*—Students in need of medical attention will be seen by the School Physician, Dr. T. N. Carey, in his office at the Medical School, between 4 and 5 P.M., daily, except Saturday and Sunday. In cases of necessity, students will be seen at their homes.

3. *Hospitalization*—If it becomes necessary for any student to enter the hospital during the school year, the Medical Council has arranged for the payment of part or all of his hospital expenses, depending on the length of his stay and special expenses incurred. This applies only to students admitted through the School Physician's Office.

4. Prospective students are advised to have any known physical defects corrected before entering school in order to prevent loss of time which later correction might incur. As minor visual defects are frequently unrecognized until detected by an ophthalmologist, it is especially urged that all new students have their eyes examined and any error of refraction corrected before beginning the course.

PRIZES AND SCHOLARSHIPS

FACULTY PRIZE

The Faculty each year awards a Gold Medal to the Graduate who during the four years of his course has shown the greatest proficiency in preparing for the practice of medicine. The five candidates standing next in order will be awarded Certificates of Honor.

DR. A. BRADLEY GAITHER MEMORIAL PRIZE

A prize of $25.00 is given each year by Mrs. A. Bradley Gaither as a memorial to the late Dr. A. Bradley Gaither, to the student in the senior class doing the best work in Genito-Urinary Surgery.

SCHOLARSHIPS*

The Dr. Samuel Leon Frank Scholarship

(Value $125.00)

This scholarship was established by Mrs. Bertha Rayner Frank as a memorial to the late Dr. Samuel Leon Frank, an alumnus of this University.

It is awarded by the Trustees of the Endowment Fund of the University each year upon nomination by the Medical Council "to a medical student of the University of Maryland, who in the judgment of said Council, is of good character and in need of pecuniary assistance to continue his medical course."

This scholarship is awarded to a second, third or fourth year student who has successfully completed one year's work in this school. No student may hold such scholarship for more than two years.

The Charles M. Hitchcock Scholarships

(Value $125.00 each)

Two scholarships were established from a bequest to the School of Medicine by the late Charles M. Hitchcock, M.D., an alumnus of the University.

These scholarships are awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Medical Council, to students who have meritoriously completed the work of at least the first year of the course in medicine, and who present to the Council satisfactory evidence of a good moral character and of inability to continue the course without pecuniary assistance.

The Randolph Winslow Scholarship

(Value $125.00)

This scholarship was established by Prof. Randolph Winslow, M.D., LL.D.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Medical Council, to a "needy student of the Senior, Junior, or Sophomore Class of the Medical School."

"He must have maintained an average grade of 85% in all his work up to the time of awarding the scholarship."

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* Note: Scholarships, unless specifically renewed on consideration of application, are for one year only.

"He must be a person of good character and must satisfy the Medical Council that he is worthy of and in need of assistance."

Dr. Leo Karlinsky Memorial Scholarship

(Value $200.00)

This scholarship was established by Mrs. Ray Mintz Karlinsky as a memorial to her husband, the late Dr. Leo Karlinsky, an alumnus of the University.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon the nomination of the Medical Council, to "a needy student of the Senior, Junior or Sophomore Class of the Medical School."

He must have maintained in all his work up to the time of awarding the scholarship a satisfactory grade of scholarship.

He must be a person of good character and must satisfy the Medical Council that he is worthy of and in need of assistance.

The University Scholarships

Two scholarships are awarded by the University: One to a student of the College of Arts and Sciences appointed by the President, to be held for only one year; the other, which entitles the holder to exemption from payment of the tuition fee of the year, is awarded annually by the Medical Council to a student of the senior class who presents to the Medical Council satisfactory evidence that he is of good moral character and is worthy of and in need of assistance to complete the course.

Frederica Gehrmann Scholarship

(Not open to holders of Warfield and Cohen Scholarships)

This scholarship was established by the bequest of the late Mrs. Frederica Gehrmann and entitles the holder to exemption from payment of tuition fees. The scholarship is awarded to a third-year student who at the end of the second year has passed the best practical examinations in Physiology, Pharmacology, Pathology, Bacteriology, Immunology, Serology, Surgical Anatomy and Neuro-Anatomy.

The Clarence and Genevra Warfield Scholarships

(Value $300.00 each)

There are five scholarships established by the Regents from the income of the fund bequeathed by the will of Dr. Clarence Warfield.

Terms and Conditions: These scholarships are available to students of any of the classes of the course in medicine. Preference is given to students from the counties of the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners.

Any student receiving one of these scholarships must agree, after graduation and a year's interneship, to undertake the practice of medicine, for a term of two years, in the county to which the student is accredited, or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded by the student.

Israel and Cecilia E. Cohen Scholarship

(Value $250.00)

This scholarship was established by Miss Eleanor S. Cohen in memory of her parents, Israel and Cecelia E. Cohen. Terms and conditions: This scholarship will be available to students of any one of the classes of the course in Medicine; preference is given to students of the counties in the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners. Any student receiving one of these scholarships must, after graduation and a year's interneship, agree to undertake the practice of medicine for a term of two years in the county to which the student is accredited, or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded.

ANNUAL HOSPITAL APPOINTMENTS

Each session the following annual appointments are made from among the graduates of the school:

TO THE UNIVERSITY HOSPITAL

Five Resident Surgeons
Four Resident Physicians
One Resident Gynecologist
Two Resident Obstetricians
Thirteen Junior Residents on a Rotating Service

A number of students are appointed each year, at the close of the session, as Clinical Assistants in the University Hospital for the summer months.

TO THE MERCY HOSPITAL

Chief Resident Physician
One Assistant Resident Physician
Chief Resident Surgeon
Five Assistant Resident Surgeons
One Resident Gynecologist
One Resident Obstetrician
Eight Junior Residents on a Rotating Service

NOTICE TO STUDENTS

The personal expenses of the students are at least as low in Baltimore as in any large city in the United States. The following estimates of a student's personal expenses for the academic year of eight months have been prepared by students, and are based upon actual experience. *In addition to these the student must bear in mind the expenditure for a microscope.*

Items	*Low*	*Average*	*Liberal*
Books	$50	$75	$100
College Incidentals	20	20	20
Board, eight months	200	250	275
Room rent	64	80	100
Clothing and laundry	50	80	150
All other expenses	25	50	75
Total	$409	$556	$720

Students will save time and expense upon their arrival in the city by going directly to the School of Medicine on the University grounds, N. E. Corner Lombard and Greene Streets. Here may be found a list of comfortable and convenient boarding houses suitable to their means and wishes.

For further information, apply to

J. M. H. Rowland, *M.D., Dean,*
Lombard and Greene Streets.

GRADUATES, UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, JUNE 2, 1934

Abramovitz, Leonard Jerome, A.B.	Maryland
Adams, Thurston Ray	North Carolina
Austraw, Henry Harrison	Maryland
Bayer, Ira Eugene	Maryland
Bayley, George Schwing	Pennsylvania
Berenstein, Stanley Harry, B.S.	Maryland
Blum, Louis Vardee, A.B	Delaware
Brodey, David Franklin, A.B.	New York
Burgtorf, George Edward, B.S.	Maryland
Campbell, Edgar Thrall, A.B.	Maryland
Caples, Delmas	Maryland
Carliner, Paul Elliott	Maryland
Coates, Stephen Paul, A.B.	New York
Cohen, Lawrence Jack	Maryland
Cooper, Jules	New Jersey
Deitz, Joseph Robert, A.B	New Jersey
Diener, Samuel	Maryland
Dorman, George Edward, B.S	Pennsylvania
Downey, Regis Fallon, B.S.	Pennsylvania
Dreher, Robert Hering, B.S.	Pennsylvania
Dunbar, John Charles	Pennsylvania
Echols, John Edward	West Virginia
Farr, Robert Wilbur, B.S.	Maryland
Fearing, William Lumsden	North Carolina
Feldman, Leon Henry	Maryland
Finegold, Joseph, B.S.	Pennsylvania
Gaskel, Jason Howard, A.B	Maryland
Gelb, Jerome, B.S	New Jersey
Gelman, Sidney	New Jersey
Goldman, Abram	Maryland
Goldstone, Herbert	Maryland
Goodhand, Charles Luther, A.B	Maryland
Goodman, Howard	Maryland
Gordon, Joseph	Maryland
Gutman, Isaac	Maryland
Hanigsberg, Murray Joseph, B.S.	New York
Healy, Robert Fairbank, B.S.	Maryland
Hoffman, Edward Sayer, A.B.	New York
Horan, William Henry, A.B	Pennsylvania
Howard, William Lawrence, B.S.	Maryland
Hummel, Leonard Malcolm	Maryland
Hurwitz, Abraham	Maryland
Insley, Philip Asbury, B.S.	Maryland
Janney, Nathan Bonney	Maryland
Jerardi, Joseph Victor, B.S.	Maryland

Johnson, Thorwald	California
Kafer, Oscar Adolph	North Carolina
Kallins, Edward Selig	Maryland
Katz, Simon, A.B	New York
Ketz, Wesley John	Pennsylvania
Knoll, William, B.S	New York
Lawler, Thomas Gorman, A.B.	California
Leass, Reuben, B.S	New York
Leavitt, Abraham Charles, B.S.	Massachusetts
Levin, Manuel, A.B	Maryland
Levin, Milton	Maryland
Maginnis, Helen Irene, A.B	Maryland
Mains, Marshall Paul, A.B	Wisconsin
Marlett, Neumann Clyde, Mus.B.	New Jersey
McNally, Hugh Bernard	Maryland
Millett, Joseph	Pennsylvania
Mirow, Richard Raymond	New York
Moore, Alfred Charles, A.B	Maryland
Moulton, Olin Cates, A.B	Maine
Mund, Maxwell Herschel	Maryland
Needleman, Max, B.S	New York
O'Connor, Raymond Francis	Pennsylvania
Orans, Alfred Abraham, A.B	New York
Rabinowitz, Jacob Herbert, B.S	New Jersey
Ray, William Turner	North Carolina
Reardon, William Thomas, A.B.	Delaware
Roberson, Edward Leon, B.S	North Carolina
Rosen, Morris, A.B	Pennsylvania
Rosenthal, Charles Morton, B.S	New York
Sacks, Milton Samuel	Maryland
Sasscer, James Ghiselin, B.S	Maryland
Satulsky, Emanuel Milton, B.S	New Jersey
Schwartz, Daniel James	Maryland
Schwartz, Theodore Allison	Maryland
Sedlacek, Joseph Arthur, B.S.	Maryland
Sekerak, Richard John Stephen	Connecticut
Siegel, Benjamin Israel, B.S	Maryland
Siegel, Milton, B.S	New York
Smith, William Benjamin	Maryland
Snyder, John Newcomer	Pennsylvania
Sollod, Bernard Walter, A.B	Maryland
Soltz, William Boyer, B.S	New York
Sproul, Dorothy Gertrude, B.S., M.S.S.	Massachusetts
Stein, Milton Robert	Maryland
Stephens, Wilson Paschall, B.S.	Virginia
Stutzman, Clyde Malverne, B.S.	Pennsylvania
Sugar, Samuel Jacob, B.S	Maryland
Sutton, Harold Lawrence, A.B.	New Jersey
Taylor, Andrew Du Val	North Carolina
Terman, Irving, A.B	New York
Timberlake, Landon, A.B	Virginia
Tuerk, Isadore, B.S	Maryland
Udkow, Samuel, B.S	New York
Wagner, Richard, A.B	New Jersey
Warshawsky, Harry, B.S	New York
Wilder, Earle Maurice	Maryland
Wolfe, William David, A.B	Maryland
Zurawski, Charles, Ph.B	Rhode Island

Honors

University Prize Gold Medal.......... MAX NEEDLEMAN

Certificates of Honor

JACOB HERBERT RABINOWITZ
RICHARD RAYMOND MIROW
PAUL ELLIOTT CARLINER
MILTON SAMUEL SACKS
JULES COOPER

Prizes

The Doctor A. Bradley Gaither Memorial Prize of $25.00 for the best work in genito-urinary surgery during the senior year.......... CHARLES ZURAWSKI

INTERNESHIPS—CLASS 1933

Aaron, Harold Henry	Lebanon Hospital, Bronx, New York
Baker, George Stansbury	University Hospital, Baltimore, Md.
Barnhardt, Albert Earl	University Hospital, Baltimore, Md.
Beanstock, Sam	Cumberland Hospital, Brooklyn, N. Y.
Becker, Martin	Beth Israel Hospital, Newark, N. J.
Bellin, David Elias	Cumberland Hospital, Brooklyn, N. Y.
Bernstein, Joseph Cecil	

Blitzman, Louis	Gouverneur Hospital, New York, N. Y.
Bowman, Harry Daniel	University Hospital, Baltimore, Md.
Cohen, Marvin Meyer	Barnert Memorial Hospital, Paterson, N. J.
Comegys, Richard Williamson	West Baltimore General Hospital, Baltimore, Md.
Diehl, Harold Clayton	Mercy Hospital, Baltimore, Md.
Di Stasio, Frank	St. Raphael Hospital, New Haven, Conn.
Drucker, Victor	Sydenham Hospital, New York, N. Y.
Emanuel, Meyer	Mount Sinai Hospital, New York, N. Y.
Espinosa, Manuel	University Hospital, Baltimore, Md.
Etkind, Meyer George	
Fineman, Jerome	Mercy Hospital, Wilkes-Barre, Pa.
Fox, Haskell Wright	University Hospital, Baltimore, Md.
Franklin, Frank Anthony	Mountainside Hospital, Montclair, N. J.
Garrison, Ralph Bernard	Baltimore City Hospitals, Baltimore, Md.
Goldman, Alexander Blodnick	Trinity Hospital, Brooklyn, N. Y.
Goldman, Meyer Leo	Gouverneur Hospital, New York, N. Y.
Gorrell, James Stanley	General Hospital of Fresno County, Fresno, Cal.
Griggs, William Lemuel	Baltimore City Hospitals, Baltimore, Md.
Harris, Earle Harold	Gouverneur Hospital, New York, N. Y.
Hedgpeth, Louten Rhodes	Baker Sanatorium, Lumberton, N. C.
Hemminger, Earl Wentworth	St. Margaret Memorial Hosp., Pittsburgh, Pa.
Highstein, Gustav	Sinai Hospital, Baltimore, Md.
Himelfarb, Albert Joseph	Sinai Hospital, Baltimore, Md.
Hoover, William Alonzo	Baltimore City Hospitals, Balto., Md.
Hurwitz, George Hillel	Jewish Hospital of St. Louis, St. Louis, Mo.
Hyman, Joseph Jay	United Israel Zion Hospital, Brooklyn, N. Y.
Hyman, Morris	
Kenler, Myron Lewis	Wyckoff Heights Hosp., Ridgewood, L. I., N. Y.
Kent, Ann Patrick	Metropolitan Hosp., Welfare Island, N. Y.
Keown, Lauriston Livingston	University Hospital, Baltimore, Md.
Kimmel, Charles	Beth Israel Hospital, Newark, N. J.
Kochman, Leon Arthur	Mercy Hospital, Baltimore, Md.
Konigsberg, Wilfred Kane	Sinai Hospital, Baltimore, Md.
Lentz, George Ellard	York Hospital, York, Pa.
Lifland, Bernard D.	Newark City Hospital, Newark, N. J.
Lowman, Milton Edward	South Baltimore General Hosp., Baltimore, Md.
Malinoski, Wallace Henry	South Baltimore General Hosp., Baltimore, Md.
Matheke, George Adolph	Newark City Hospital, Newark, N. J.
Miller, Benjamin	Baltimore City Hospitals, Baltimore, Md.
Miller, Meyer George	Coney Island Hospital, Brooklyn, N. Y.
Moore, James Irving	University Hospital, Baltimore, Md.
Novenstein, Sidney	Lebanon Hospital, Bronx, N. Y.
Osserman, Kermit Edward	Bronx Hospital, New York, N. Y.
Peer, George Foster	Ohio Valley General Hosp., Wheeling, W. Va.
Pico, Jose Teodoro	University Hospital, Baltimore, Md.
Racusin, Nathan	Franklin Square Hospital, Baltimore, Md.
Robinson, Daniel Robert	Mercy Hospital, Baltimore, Md.
Rosenberg, Arthur	Israel Zion Hospital, Brooklyn, N. Y.
Rosenfeld, David Herman	Grace Hospital, Richmond, Va.
Rubin, Samuel S	Franklin Square Hospital, Baltimore, Md.

Rutland, Hedley Ethelbert	York Hospital, York, Pa.
Sager, Harold	Bayonne Hospital, Bayonne, N. J.
Scarborough, Asa Mark	Greenville City Hospital, Greenville, S. C.
Schiff, Hyman	
Schiff, Joseph	Wesson Memorial Hospital, Springfield, Mass.
Schindler, Blane Markwood	Philadelphia Jewish Hospital, Philadelphia, Pa.
Schneiman, Maurice Harris	Mercy Hospital, Baltimore, Md.
Schochet, George	West Baltimore General Hosp., Baltimore, Md.
Schwartz, Alec Robert	Sinai Hospital, Baltimore, Md.
Schwartz, Paul M	Wesson Memorial Hospital, Springfield, Mass.
Sewell, Stephen	Chestnut Hill Hospital, Philadelphia, Pa.
Shea, Cornelius Joseph	Bridgeport Hospital, Bridgeport, Conn.
Shinn, George Clyde	Baltimore City Hospitals, Baltimore, Md.
Smith, Ashby Wade	Jefferson Hospital, Roanoke, Va.
Stackhouse, Howard Jr	University Hospital, Baltimore, Md.
Stern, Maurice Lee	Lebanon Hospital, Bronx, N. Y.
Taylor, Clifford Morrison	University Hospital, Baltimore, Md.
Thumin, Mark	Chester Hospital, Chester, Pa.
Turano, Leonard Francis	Mary Immaculate Hospital, Jamaica, L. I., N. Y.
Van Metre, John Lee	University Hospital, Baltimore, Md.
Way, Samuel Eason	University Hospital, Baltimore, Md.
Weisman, Samuel	Sinai Hospital, Baltimore, Md.
Wieciech, Michael Joseph	South Baltimore General Hosp., Baltimore, Md.
Wolbert, Frank Olaf	Harrisburg Hospital, Harrisburg, Pa.
Woodard, Barney Lelon	City Memorial Hospital, Winston Salem, N. C.
Woodford, Thomas L	Ohio Valley General Hospital, Wheeling, W.Va.
Zager, Saul	Newark Beth Israel Hospital, Newark, N. J.

MATRICULATES

FOURTH YEAR CLASS, 1933–1934

Abramovitz, Leonard Jerome, A.B.	Maryland
Adams, Thurston Ray	North Carolina
Austraw, Henry Harrison	Maryland
*Baldwin, Kenneth Malison	Maryland
Bayer, Ira Eugene	Maryland
Bayley, George Schwing	Pennsylvania
Berenstein, Stanley Harry, B.S.	Maryland
Blum, Louis Vardee, A.B	Delaware
Brodey, David Franklin, A.B.	New York
Burgtorf, George Edward, B.S.	Maryland
Campbell, Edgar Thrall, A.B.	Maryland
Caples, Delmas	Maryland
Carliner, Paul Elliott	Maryland
Coates, Stephen Paul, A.B	New York
Cohen, Lawrence Jack	Maryland
Cooper, Jules	New Jersey
Deitz, Joseph Robert, A.B	New Jersey
Diener, Samuel	Maryland
Dorman, George Edward, B.S.	Pennsylvania
Downey, Regis Fallon, B.S.	Pennsylvania
Dreher, Robert Hering, B.S.	Pennsylvania
Dunbar, John Charles	Pennsylvania
Echols, John Edward	West Virginia
Farr, Robert Wilbur, B.S.	Maryland
Fearing, William Lumsden	North Carolina
Feldman, Leon Henry	Maryland
Finegold, Joseph, B.S.	Pennsylvania
Gaskel, Jason Howard, A.B	Maryland
Gelb, Jerome, B.S	New Jersey
Gelman, Sidney	New Jersey
Goldman, Abram	Maryland
Goldstone, Herbert	Maryland
Goodhand, Charles Luther, A.B	Maryland
Goodman, Howard	Maryland
Gordon, Joseph	Maryland
Gutman, Isaac	Maryland
Hanigsberg, Murray Joseph, B.S.	New York
Healy, Robert Fairbank, B.S.	Maryland
Hoffman, Edward Sayer, A.B.	New York
Horan, William Henry, A.B	Pennsylvania
Howard, William Lawrence, B.S.	Maryland
Hummel, Leonard Malcolm	Maryland

* Did not complete the year.

Hurwitz, Abraham............Maryland
Insley, Philip Asbury, B.S......Maryland
Janney, Nathan Bonney........Maryland
Jerardi, Joseph Victor, B.S.....Maryland
Johnson, Thorwald............California
Kafer, Oscar Adolph......North Carolina
Kallins, Edward Selig.........Maryland
Katz, Simon, A.B.............New York
Ketz, Wesley John.........Pennsylvania
Knoll, William, B.S...........New York
Lawler, Thomas Gorman, A.B..California
Leass, Reuben, B.S...........New York
Leavitt, Abraham Charles, B.S. Massachusetts
Levin, Manuel, A.B...........Maryland
Levin, Milton................Maryland
Maginnis, Helen Irene, A.B.....Maryland
Mains, Marshall Paul, A.B.....Wisconsin
Marlett, Neumann Clyde, Mus.B. New Jersey
McNally, Hugh Bernard.......Maryland
Millett, Joseph.............Pennsylvania
Mirow, Richard Raymond.....New York
Moore, Alfred Charles, A.B.....Maryland
Moulton, Olin Cates, A.B.........Maine
Mund, Maxwell Herschel.......Maryland
Needleman, Max, B.S.........New York
O'Connor, Raymond Francis.Pennsylvania
Orans, Alfred Abraham, A.B....New York
Rabinowitz, Jacob Herbert, B.S. New Jersey
Ray, William Turner......North Carolina
Reardon, William Thomas, A.B..Delaware
Roberson, Edward Leon, B.S. North Carolina
Rosen, Morris, A.B.........Pennsylvania
Rosenthal, Charles Morton, B.S. New York
Rudo, Nathan................Maryland
Sacks, Milton Samuel..........Maryland
Sasscer, James Ghiselin, B.S....Maryland
Satulsky, Emanuel Milton, B.S. New Jersey
Schwartz, Daniel James........Maryland
Schwartz, Theodore Allison.....Maryland
Sedlacek, Joseph Arthur, B.S...Maryland
Sekerak, Richard John Stephen Connecticut
Siegel, Benjamin Israel, B.S....Maryland
Siegel, Milton, B.S............New York
Smith, William Benjamin......Maryland
Snyder, John Newcomer....Pennsylvania
Sollod, Bernard Walter, A.B....Maryland
Soltz, William Boyer, B.S......New York
Sproul, Dorothy Gertrude, B.S., M.S.S. Massachusetts
Stein, Milton Robert...........Maryland
Stephens, Wilson Paschall, B.S...Virginia
Stutzman, Clyde Malverne, B.S. Pennsylvania
Sugar, Samuel Jacob, B.S......Maryland
Sutton, Harold Lawrence, A.B..New Jersey
Taylor, Andrew Du Val...North Carolina
Terman, Irving, A.B..........New York
Timberlake, Landon, A.B........Virginia
Tuerk, Isadore, B.S.............Maryland
Udkow, Samuel, B.S...........New York
Wagner, Richard, A.B........New Jersey
Warshawsky, Harry, B.S......New York
Wilder, Earl Maurice..........Maryland
Wolfe, William David, A.B.....Maryland
Zurawski, Charles, Ph.B....Rhode Island

THIRD YEAR CLASS, 1933-1934

Adelman, Milton Harris, B.S...New York
Albrittain, John Warren, B.S...Maryland
Alessi, Edward James..........Maryland
Alonso, Miguel, B.S..........Porto Rico
Alpert, George, A.B.......Massachusetts
Anderson, John Bascom, B.S. North Carolina
Aungst, Melvin Rauch......Pennsylvania
Barnes, Henry Eugene, Jr., B.S. North Carolina
Battaglia, Dominic Thomas, B.S. Maryland
Bierer, Dan George, B.S....Pennsylvania
Bock, Charles Aloysius, B.S..Pennsylvania
Brouillet, George Hector, B.S. Massachusetts
Bunn, James Pettigrew, Jr., B.S, North Carolina
Cassidy, William Adrian, A.B......Maine
Cohen, Philip...............New Jersey
Coplin, George Joseph, B.S....New Jersey
Cornbrooks, Ernest Ivon, Jr., A.B. New Jersey
Cotter, Edward Francis........Maryland
Cutler, Frank Henry, A.B..........Utah
Dickey, Francis George, A.B....Maryland
Diehl, Earl Henry.............Maryland
Dodge, Douglas Rude..........Michigan
Doerner, Alexander Andrew, A.B. New York
Du Bois, Robert Lionel......Connecticut
Dunnigan, William Charles, A.B. Maryland
Einhorn, Samuel Edward, B.S..New Jersey
Ewald, August Ludwig, B.S....Maryland
Fader, Ferdinand, A.B.......New Jersey
Freeman, Irving, B.S..........Maryland
Fruchtbaum, Robert Pearson, B.S. New Jersey
Galitz, Philip Jacob, M.A......New York
Gerwig, Walter Henry, Jr...West Virginia
Godbey, John Randolph....West Virginia
Grenzer, William Howard, A.B..Maryland
Gross, Joseph Bernard.........Maryland
Hammill, Gerard Paul, B.S..Pennsylvania
Hamrick, John Carl, B.S..North Carolina
Harris, Aaron.................Maryland

Hartman, Ira Frank, A.B., B.S. West Virginia
Heghinian, Jeannette Rosaline E. Maryland
Helfrich, William Goldsborough, B.S. Maryland
Herald, James Kennedy............Ohio
Herrold, Lewis Charles, B.S..Pennsylvania
Hollander, Arthur, B.S........New York
Hugg, John Henry, B.S.....Pennsylvania
Hunt, Josiah Arnold, B.S.......Maryland
Jordan, William Pritchard, B.S. North Carolina
Kaminsky, Aaron Louis, B.S. .New Jersey
Kane, Harry Francis, A.B......Maryland
Keller, Michael Lawrence.....New Jersey
Klein, Harold Henry.......Pennsylvania
Klompus, Irving, A.B........New Jersey
Knowles, Frederick Edwin, Jr., B.S. New Jersey
Laino, Frank Armento, B.S.....Maryland
Lane, Edwin Charles, A.B.....New Jersey
Layton, Caleb Rodney........New York
Lewis, Archie Clifton, B.S......Maryland
Lichtenberg, Walter, B.S., M.A. New York
Lieb, Saul, A.B..............New Jersey
Llewelyn, Louis Grandin, A.B...Maryland
MacLaughlin, Donald Clay, A.B. Maryland
Marek, Charles Bernard........Maryland
Mays, Howard Brooks.........Maryland
McDonough, Oscar Tracy, Jr., A.B. Pennsylvania
McGregor, Alpine Watson..........Utah
McGregor, Lorenzo Watson........Utah
McHenry, DeArmond John, B.S. Pennsylvania
Mech, Karl Frederick, B.S.....Maryland
Mills, Lawrence Hoy, A.B., B.S. West Virginia
Montgomery, Bruce........Pennsylvania
Noon, Milton A...............Maryland
Pepe, Anthony James, B.S....Connecticut
Raffel, William................Maryland
Reier, Charles Henry..........Maryland
Roberts, David P..............Maryland
Robinson, Harry Maximilian, Jr. Maryland
Robinson, Milton Irving.......New York
Rogers, Frank Tipton..........Tennessee
Rosen, Israel, A.B.............Maryland
Rosen, Sol Hyman...........New Jersey
Rosenberg, Harold William, B.S. New York
Russell, John Carroll..........Maryland
Schlachman, Milton...........Maryland
Schmitt, George Frederick, Jr...Maryland
Schonfeld, Paul...............Maryland
Shapiro, Joseph, A.B..........New York
Shapiro, Sydney Harold.......New York
Shaul, John Melvin, A.B.......New York
Siscovick, Milton..............Maryland
Skeen, Leo Brown........North Carolina
Spitznagle, Vernon Edward, B.S. Maryland
Stein, Benjamin Maxwell, B.S..New York
Teitel, Louis, B.S.............New York
Teitelbaum, Harry Allen, B.S...New York
Tuby, Joseph, B.S............New York
Vieweg, George Louis, Jr....West Virginia
Vozel, Luther F...............Maryland
Waghelstein, Julius Meyer.....Maryland
Warren, John McCullen, A.B...Maryland
Wheless, James Block, B.S. North Carolina
Williams, Jesse Frank, B.S..West Virginia
Williamson, Charles Vernon....Maryland
Wilson, Norman James, B.S... Maryland
Wode, Alvin Eugene William...Maryland
Wood, Everet Hardenbergh, A.B. New Jersey
Woodward, Lewis Klair, Jr., A.B. Maryland

SECOND YEAR CLASS, 1933-1934

Batalion, Abraham Louis......Maryland
Bernstein, Milton, A.B.........Maryland
Bieren, Roland Essig..........Maryland
Booth, Harold Thomas, A.B....New York
Bowie, Harry Clay............Maryland
Burka, Irving, B.S...District of Columbia
Burns, Harold Hubert......Pennsylvania
Burton, Jerome Kermit........Maryland
Bush, Joseph Edgar, A.B.......Maryland
Carlson, Carl Edwin.........Connecticut
Cranage, Bidwell Chapman, A.B. Michigan
Ctibor, Vladimir Frantisek, A.B. New Jersey
Czekaj, Leo Michael...........Maryland
Davidson, Nachman, A.B......Maryland
Davis, George Howey, B.S.....Maryland
Deehl, Seymour Ralph, B.S...New Jersey
Deradorian, Neshon Edward, B.S. Connecticut
Dittmar, Stuart Watt......Pennsylvania
Dixon, Darius McClelland, B.S..Maryland
Drozd, Joseph................Maryland
Feldman, Jerome..............Maryland
Feldman, Philip Michael, B.S...New York
Fichtner, Albon Russell.....Pennsylvania
Fissel, John Edward...........Maryland
Fox, Lester Mitchell...........Maryland
Franklin, Philip Lair..........Maryland
Frich, Michael Garland.....Pennsylvania
Gillis, Marion Howard.........Maryland
Gimbel Harry Solomon, A.B....Maryland
Glassner, Frank...............Maryland
Gordner, Jesse Walter, Jr., B.S. Pennsylvania
Greengold, David Bernard, A.B.Maryland

Gregory, Philip Orson.............Maine
Greifinger, William, A.B......New Jersey
Grollman, Jaye Jacob..........Maryland
Herman, Daniel Loeb, A.B.....Maryland
Isaacs, Benjamin Herbert, A.B..Maryland
Jones, Ceirianog Henry.....Pennsylvania
Jones, Emory Ellsworth, Jr..West Virginia
Kagen, Gordon Arthur, A.B..Pennsylvania
Karfgin, Walter Esselman, B.S..Maryland
Karpel, Saul, B.S.............New York
Katz, Joseph.................Maryland
Kleiman, Norman, A.B........Maryland
Knobloch, Howard Thomas, B.S. Pennsylvania
Kolodner, Louis Joseph........Maryland
Kroll, Louis Joseph, A.B.......Maryland
Lipin, Raymond Joseph........Maryland
Lowman, Morris Robert.......Maryland
Mansfield, William Kenneth.Pennsylvania
Maser, Louis Robert..........Maryland
McCauley, Arthur Franklin, B.S. Maryland
McKnew, Hector Caldwell, Jr...Maryland
McNinch, Eugene Robinson, B.S. Pennsylvania
Moran, James Blessing, Ph.B. Rhode Island
Moran, James Patrick, B.S.....New York
Moses, Benjamin Bernard......Maryland
Myerovitz, Joseph Robert......Maryland
Myers, William, B.S.......Pennsylvania
Nestor, Thomas Agnew, Ph.B. Rhode Island
Nicholson, Morris John, B.S....Maryland
Nowak, Sigmund Roman, B.S...Maryland
O'Brien, William Aloysius, Jr., A.B. New Jersey
Parr, William Andrew..........Maryland
Pembroke, Richard Heber, Jr., A.B. Maryland
Pentecoste, Salvador Dante...New Jersey
Reichel, Samuel Marvin, A.B...Maryland
Reynolds, John Henry, Jr...Pennsylvania
Rochlin, Narcisse..............Maryland
Roseman, Ralph Bernard, A.B. Pennsylvania
Rosenthal, Victor, B.S.........New York
Schmieler, George Peter, B.S. Pennsylvania
Selby, George Durward, A.B....Maryland
Shimanek, Lawrence Joseph....Maryland
Shub, Morris.................Maryland
Solomon, Cyril................Maryland
Sorin, Matthew.............New Jersey
Spain, David Michael.........New York
Squires, Millard Fillmore, Jr....Maryland
Stapen, Milton Honore, B.S....New York
Stecher, Joseph Louis..........Maryland
Steinberg, Samuel.............Maryland
Stern, Morris Harold, B.S.....New Jersey
Sunday, Stuart Dos Passos, A.B. Maryland
Terr, Isaac, B.S..............New York
Thomas, Anthony Joseph, Ph.B. Massachusetts
Tierney, Lawrence Matthew..Connecticut
Waller, William Kennedy, A.B..Maryland
Wehner, Daniel George........Maryland
Weinstein, Jack Joseph.........Maryland
Wells, Gibson Jackson, A.B.....Maryland
Wilfson, Daniel, Jr., A. B......Maryland
Wilkinson, Arthur Gilbart, A.B. Connecticut
Wolf, Nathan.................Maryland
Yavelow, Charles Sidney, A.B..New York
Zimring, Joseph George, B.S...New York

FIRST YEAR CLASS, 1933–1934

Abbott, Thomas Gilbert.......Maryland
Bank, R. Stanley.............Maryland
Barnett, Ernest, B.S..........New York
Bereston, Eugene Sydney, A.B..Maryland
Bowers, John Zimmerman, B.S..Maryland
Brill, Leonard................Maryland
Burtnick, Lester Leon.........Maryland
*Butler, Charles Ayden....North Carolina
Casanova, José Ramón.........Porto Rico
Christensen, Roland Arnold..Pennsylvania
Cocimano, Joseph Michael District of Columbia
Cooney, Robert Francis.....Pennsylvania
Coughlan, Stuart Gray.........Maryland
Daily, Louis Eugene...........Maryland
D'Alessio, Charles Magno, B.S. Connecticut
D'Amico, Thomas Vincent, A.B. New Jersey
Davidson, Eli, B.S............New York
Diggs, Everett Schnepfe........Maryland
Di Paula, Robert Salvatore, A.B. Maryland
Eisner, William Monroe, B.S...New York
Ellison, Emanuel Simon........Maryland
Ensor, Helen Robinson........Maryland
*Feldman Charles William.....Maryland
Finn, John Hannon, A.B....Massachusetts
Fleming, Samuel Wallace..North Carolina
Frenkil, James................Maryland
Frohman, Isaac...............Maryland
Gehlert, Sidney Richard, A.B...Maryland
Gerber, Charles, B.S.........New Jersey
Gibel, Harry.................New York
Gillespie, John Lawrence, B.S..New Jersey
Gochenour, Howard Wellington West Virginia
Goffin, Herbert...............New York
Goldberg, Sigmund............Maryland
Goldsmith, Fred Emanuel......Maryland
Gordon, William Cecil, A.B....New York
Gore, Robert Joseph, A.B......Maryland

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* Did not complete the year.

Gottdiener, Elvin Edward......Maryland
Greenwald, Frank, A.B........New York
Gundry, Alfred Thomas, Jr., A.B. Maryland
Hahn, Charles Solomon, B.S...New York
Hedrick, Grover Cleveland, Jr. West Virginia
Highstein, Benjamin...........Maryland
Hochfeld, Leo, B.S............New York
Hodgson, Eugene Welch....Pennsylvania
Hoffman, Charles Wilbur, Jr....Maryland
Hornig, Frank August, Jr......Maryland
Humphries, William Coolidge, A.B. Maryland
Insley, James Knox, Jr., A.B...Maryland
Jackson, Samuel, B.S..........New York
Jacobson, Isadore Alan, A.B....Maryland
Johnston, Clarence Frederick, Jr., A.B. Maryland
Jones, James Porter........West Virginia
Kadan, James Earl, A.B.......Maryland
Kaltreider, D. Frank Olewiler, Jr. Pennsylvania
Kaplan, Isadore...............Maryland
Kaplan, Jack Allen, B.S.......New York
Kaplan, Nathan, A.B..........Maryland
Katz, Albert Herbert, A.B......Maryland
Katz, Isadore, M.S...........New York
Kemick, Irvin Bernard.........Maryland
Klemkowski, Irvin Philip, A.B..Maryland
Kocher, Quintin Sherman, Jr. Pennsylvania
Kolman, Lester Norman.......Maryland
Krajcovic, Jesse John..........Maryland
Kump, Albert Barker........New Jersey
Kunkowski, Mitchell Frank, B.S. Maryland
La Mar, David William........Maryland
Lenker, Luther Albert, B.S..Pennsylvania
Leone, Peter Ralph.........Pennsylvania
Leskin, Louis Woton, B.S......New York
Levine, Leonard Warren.........Virginia
Levinson, Leonard Jules, B.S...New York
Linhardt, Elmer George........Maryland
Lisansky, Ephraim Theodore, A.B. Maryland
Long, William Broughton, Jr...Maryland
Lubinski, Chester James, A.B..Maryland
Mackowiak, Stephen Casimir...Maryland
Manieri, Frank Vincent........Maryland
Marino, Irene Thelma.........New York
Matheke, Otto George, Jr.....New Jersey
Meyer, Milton Joseph.........New York
Muller, Stephen Edwin........Maryland
Muse, Joseph Ennalls, B.S.....Maryland
Myers, Lyndon Beaver......Pennsylvania
Myers, Philip, A.B............Maryland
Nataro, Maurice, B.S........New Jersey
Novey, Samuel................Maryland
*Owens, Maurice E. Broadas, Jr. Maryland
Owens, Richard Spurgeon, Jr., B.S. Virginia
Pass, Isidore Earl.............Maryland
Pavlatos, August Constantine, B.S, Maryland
Perlman, Lawrence, B.S.......New York
Piccolo, Pasquale Albert, B.S.Connecticut
Pokrass, Frederick Phillip...Pennsylvania
Resnick, Elton................Maryland
Revell, Samuel Thompson Redgrave, Jr., B.S.......................Georgia
Rigdon, Henry Lewis..........Maryland
Robins, Isadore Morris, A.B.Pennsylvania
Robinson, Martin Herman, A.B. Pennsylvania
Rochkind, Reuben, A.B........Maryland
Roseman, Ephraim, A.B.......Maryland
*Rotkovitz, William...........Maryland
Rubin, Morris, A.B..........Connecticut
Rudman, Gilbert Elmore, A.B..Maryland
Safran, Sidney................Maryland
Sakowski, John Paul.........New Jersey
Sartorius, Norman Ellis, Jr., A.B. Maryland
Scarborough, Clarence Parke, A.B. Pennsylvania
Schmidt, Jacob Edward........Maryland
Seegar, John King Beck Emory, Jr., A.B. Maryland
Seidel, Joshua, A.B............Maryland
Semoff, Milton C.F., B.S.......New York
Shapiro, Abraham.............Maryland
Shear, Meyer Robert...........Maryland
*Smith, John P., A.B..........Maryland
Spielman, Morton Marvin, B.S..Maryland
Stapen, Mannie..............New York
Statman, Bernhardt Joseph...New Jersey
Steiner, Albert................Maryland
*Stewart, Roy Glen............Maryland
Sullivan, Thomas John, B.S...New Jersey
Suwalsky, Sydney...........Connecticut
Thompson, James Upshur, A.B. Maryland
Trupp, Mason, B.S............Maryland
Weems, George Jones, A.B.....Maryland
Weiss, Henry Wolf............New York
White, Samuel Cottrell........Maryland
Whitworth, Frank Dixon.......Maryland
Wilkin, Mabel Giddings, M.A......Texas
Williams, Richard Jones, A.B...Maryland
Williams, Robert Roderic, A.B..New York
Wolff, Eldridge Henry.........Maryland
Woodrow, Jack Henry, A.B....New York
Worthington, Richard Walker, Jr. Maryland
Zacek, Frank Anthony.....Massachusetts
Zeligman, Israel, A.B..........Maryland

* Did not complete the year.

SUMMARY OF STUDENT ENROLLMENT AS OF JUNE 1, 1934

	College Park	Baltimore	Totals
Resident Collegiate Courses—Academic Year:			
College of Agriculture	172	...	172
College of Arts and Sciences	865	...	865
School of Dentistry	...	377	377
College of Education	229	...	229
College of Engineering	331	...	331
Graduate School	196	...	196
College of Home Economics	117	...	117
School of Law	...	199	199
School of Medicine	...	458	458
School of Nursing	...	124	124
School of Pharmacy	...	329	329
Total	1910	1487	3397
Summer School, 1933	840	...	840
Extension Courses:			
Industrial Education (Collegiate Credit)	201	...	201
Mining (Sub-Collegiate Credit)	217	...	217
Grand Total	3168	1487	4655
Less Duplications	220	7	267
Net Total	2948	1480	4388

Enrollment in Short Courses of from two to seven days; Rural Women, 414; Boys' and Girls' Club, 244; Volunteer Firemen, 77; Florists, 68; Nurserymen, 53; Garden School, 200; Practice School in the Summer Session, 38.

ALUMNI ASSOCIATION SECTION

OFFICERS

President	DR. ALFRED T. GUNDRY
Vice-Presidents	DR. FREDERICK E. KNOWLES COL. ROGER BROOKE DR. JESSE R. WANNER
Secretary	DR. FRANK K. MORRIS
Assistant Secretary	DR. T. NELSON CAREY
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Board of Directors	DR. W. H. TOULSON, *Chairman* DR. ALFRED T. GUNDRY DR. T. B. AYCOCK DR. FRANK K. MORRIS DR. D. J. PESSAGNO DR. T. NELSON CAREY DR. CHARLES BAGLEY, JR. DR. KENNETH B. BOYD DR. ARTHUR HEBB
Hospital Council	DR. JOHN EVANS DR. GEORGE SARGENT

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Library Committee	Dr. Wm. S. Love, Jr.
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Editors	Dr. Emil Novak Dr. Gardner Warner
Alumni Council	Dr. W. H. Triplett Dr. Alfred T. Gundry

The names listed above are officers for the term beginning July 1, 1934, and ending June 30, 1935.

ENDOWMENT FUND

The following constitute the Board of Trustees of this Fund:

E. F. Kelly, Ph.G., *Chairman*
J. M. H. Rowland, M. D.
Harry Adler, M.D.
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Horace M. Davis, D.D.S.
Daniel Baker, Jr.
Stuart Janney
Robertson Griswold
Arthur M. Shipley, Sc.D., M.D.

This Board is incorporated by act of the Legislature of the State, its legal title being "The Trustees of the Endowment Fund of the University of Maryland," and is independent and self-perpetuating. Its powers are limited *to the expenditure of the interest derived from the various funds*, which is applied as directed by donors for the benefit of the University. Contributions, donations and bequests are solicited from Alumni and friends. They may be made to the general or University Fund, to the Medical Fund or to any other department of the University. If intended for the School of Medicine, they may be given to the general medical fund or to some special object, as building, research, library, pathology, hospital, publication, laboratories, gymnasium, scholarship, medal, prize, etc., in which case the wishes of the donor will be strictly regarded. Attention is invited to the "Charles Frick Research Fund," already established in memory of that distinguished investigator. Checks should be made payable to Endowment Fund of the University of Maryland, J. M. H. Rowland, Treasurer, Lombard and Greene Streets, Baltimore, Md.

FORMS OF DEVISE OR BEQUEST

To School of Medicine

I give, devise and bequeath to the Regents of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic...

(Here state amount or describe property)

To Endowment Fund

I give, devise and bequeath to the Trustees of the Endowment Fund of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic...

(Here state amount or describe property)

THE UNIVERSITY OF MARYLAND SCHOOL OF NURSING

FACULTY AND INSTRUCTORS

Annie Crighton, R.N.	*Superintendent of Nurses and Director of School of Nursing*
Vesta Swartz, R.N.	*Assistant Superintendent of Nurses*
Lillie Hoke, R.N.	*Instructor in Nursing*
Helen Wright, R.N.	*Instructor of Nursing and Supervisor of Wards*
Elizabeth Aitkenhead, R.N.	*Instructor in Surgical Technique for Nurses and Supervisor of Operating Pavilion*
Miriam Connelly	*Instructor in Dietetics*
Edith Walton	*Instructor in Massage*
Bertha Hoffman, R.N.	*Assistant Instructor in Nursing and Supervisor of Wards*
Marie Olga Cox, R.N.	*Night Supervisor*
Eva Holloway, R.N.	*Supervisor—Dispensary*
Beatrice Krause, R.N.	*Head Nurse—Obstetrical Ward*
Estella Baldwin, R.N.	*Head Nurse—Children's Ward*
Grace Dick, R.N.	*Head Nurse—Men's Medical Ward*
Naomi Allen, R.N.	*Head Nurse—Men's Surgical Ward*
Elizabeth Cannon, R.N.	*Head Nurse—Men's Surgical Ward*
Freda Fazenbaker, R. N.	*Head Nurse—Women's Medical and Surgical Ward*
Lucy A. Brude, R.N.	*Head Nurse—Private Hall*
Eva Laigneil, R.N.	*Head Nurse—Private Hall*
Cora M. Wilson, R.N.	*Head Nurse—Surgical Supply Room*
Tillie Mohan	*Supervisor—Nurse's Home*
Josephine Toms, R.N.	*Assistant Head Nurse—Operating Room*
Rowena Roach, R.N.	*Assistant Head Nurse—Operating Room*
Emma Winship, R.N.	*Supervisor—Accident Department*
Catherine Rodenwald, R.N.	*Outside Obstetrical Service—Prenatal*
Stella U. Ricketts, R. N.	*Outside Obstetrical Service—Prenatal*
Louise Martin	*Outside Obstetrical Service—Delivery*
Harriet Schroeder, R.N.	*Outside Obstetrical Service—Post-partum*
Evelyn Zapf, R.N.	*Outside Obstetrical Service—Post-partum*
Margaret Currens, R.N.	*Assistant Night Supervisor*

LECTURERS FROM THE SCHOOL OF MEDICINE

C. L. Davis, M.D	*Anatomy*
Ferd. A. Ries, M.D	*Physiology*
F. W. Hachtel, M.D.	*Bacteriology*
John C. Krantz, Jr., Ph.D	*Materia Medica*
Emil G. Schmidt, Ph.D.	*Chemistry*
Ruth C. Vanden Bosche, B.S.	
H. C. Smith, M.D.	*Medicine*
C. C. Habliston, M.D.	
Myron Tull, M.D.	
Cyrus Horine, M.D	*Surgery*
L. H. Douglass, M.D	*Obstetrics*
J. M. H. Hundley, Jr., M.D.	*Gynecology*
Loring C. Joslin, M.D	*Pediatrics*
R. M. Chapman, M.D	*Psychiatry and Neurology*
Harry M. Robinson, M.D	*Skin and Venereal Diseases*
Clyde A. Clapp, M.D	*Otology and Ophthalmology*
E. A. Looper, M.D	*Laryngology and Rhinology*
Allen Fiske Voshell, M.D	*Orthopaedic Surgery*
Special Lecturers	*Social Service*
Harry B. McCarthy, D.D.S	*Dental*

STUDENT ENROLLMENT

Seniors	24
Intermediates	30
Juniors and Preparatory	50
Total	104

GENERAL INFORMATION

The University of Maryland School for Nurses was established in the year 1889.

Since that time it has been an integral part of the University of Maryland, coming under the same government.

The school is non-sectarian, the only religious services being morning prayers.

The University Hospital is a general hospital containing about 250 beds. It is equipped to give young women a thorough course of instruction and practice in all phases of nursing.

Programs Offered: The program of study of the school is planned for two groups of students: (a) the three-year group and (b) the five-year group.

Requirements for Admission: A candidate for admission to the School of Nursing must be a graduate of an accredited high school or other recognized preparatory school, and must present record showing that she has completed satisfactorily the required amount of preparatory study. Preference will be given to students who rank in the upper third of the graduating class in their preparatory schools.

Candidates are required to present 15 units for entrance. Required (7), and Elective (8) units for entrance.

Required: English (I, II, III, IV), 3 units; algebra to quadratics, 1 unit; plane geometry, 1 unit; history, 1 unit; science, 1 unit. Total, 7 units.

Elective: Astronomy, biology, botany, chemistry, civics, drawing, economics, general science, geology, history, home economics, vocational subjects, languages, mathematics, physical geography, physics, zoology, or any other subject offered in a standard high school or preparatory school for which graduation credit is granted toward college or university entrance. Eight units must be submitted from this group, of which not more than four units may pertain to vocational subjects.

In addition to the above requirements, students must meet certain other definite requirements in regard to health, age and personal fitness for nursing work.

The preferable age for students registering for the three-year course is 20 to 35 years, although students may be accepted at the age of 18. Women of superior education and culture are given preference, provided they meet the requirements in other particulars. If possible, a personal interview with the Director of the School should be arranged on Tuesday or Friday from 11:00 A.M. to 12:00 M.

Blank certificates will be furnished upon application to the Director of the School of Nursing, University of Maryland Hospital, Baltimore, Maryland.

REGISTRATION WITH MARYLAND STATE BOARD OF EXAMINERS OF NURSES: By regulation of the Maryland State Board of Examiners of Nurses, all students entering schools of nursing in Maryland must, at the beginning of their course, register with the Board in order to be eligible for examination and license on completion of this course. Blanks necessary for this purpose will be sent with application forms. A fee of $2 is charged for registration.

The fitness of the applicant for the work and the propriety of dismissing or retaining her at the end of her term of probation are left to the decision of the Director of the School. Misconduct, disobedience, insubordination, inefficiency, or neglect of duty are causes for dismissal at any time by the President of the University.

The requirements for admission to the five-year program of the School of Nursing are the same as for other colleges. (Special catalog will be sent upon request.) The three-year program is designed to meet the requirements for the diploma in Nursing and comprises the work of the first, second, and third hospital years.

Admission to the School: Students for the spring term are admitted in February and those for the fall term in September or October, and the five-year course in September.

Hours of Duty: During the preparatory period the students are engaged in class work for the first four months with no general duty in the hospital; for the remainder of this period they are sent to the wards on eight-hour duty. During the first, second, and third years the students are on eight-hour day duty and nine-hour night duty, with six hours on holidays and Sundays. The night-duty periods are approximately two months each, with one day at the termination of each term for rest and recreation. The period of night duty is approximately five to six months during the three years.

The first four months of the preparatory period are devoted to theoretical instruction given entirely in the lecture and demonstration rooms of the training school, hospital, and medical school laboratories. The average number of hours per week in formal instruction, divided into lecture and laboratory periods, is 30 hours, and includes courses in Anatomy, Physiology, Cookery and Nutrition, Dosage and Solution, Hygiene, Bacteriology, Chemistry, Materia Medica, Practical Nursing, Bandaging, Ethics, and History of Nursing. During the last two months of the probation period the students are placed on duty in the hospital wards for instruction in bedside nursing, and are expected to perform the duties assigned to them by the Director of the School. At the close of the first semester the students are required to pass satisfactorily both the written and practical tests. Failure to do so will be sufficient reason for terminating the course at this point.

Sickness: A physician is in attendance each day, and when ill, all students are cared for gratuitously. The time lost through illness in excess of two weeks, during the three years, must be made up. Should the authorities of the school decide that through the time lost the theoretical work has not been sufficiently covered to permit the student to continue in that year, it will be necessary for her to continue her work with the next class.

Vacations: Vacations are given between June and September. A period of three weeks is allowed the student at the completion of the first year, and four weeks at the completion of the second year.

Expenses: A fee of $50.00, payable on entrance, is required from all students. This will not be returned. A student receives her board, lodging, and a reasonable amount of laundry from the date of entrance. During her period of probation she provides her own uniforms, obtained through the hospital at a nominal cost. After being accepted as a student nurse she wears the uniform supplied by the hospital. The student is also provided with text-books and shoes. Her personal expenses during the course of training and instruction will depend entirely upon her individual habits and tastes.

FIVE-YEAR PROGRAM

In addition to the regular three-year course of training, the University offers a combined Academic and Nursing program leading to the degree of Bachelor of Science and a Diploma in Nursing.

The first two years of the course (or pre-hospital period), consisting of 68 semester hours, are spent in the College of Arts and Sciences of the University, during which period the student has an introduction to the general cultural subjects which are considered fundamental in any college training. At least the latter of these two years must be spent in residence at College Park, in order that the student may have her share in the social and cultural activities of college life. The last three years are spent in the School of Nursing in Baltimore.

Degree and Diploma

The degree of Bachelor of Science and the Diploma in Nursing are awarded to students who complete successfully the prescribed combined academic and nursing program.

MERCY HOSPITAL SCHOOL OF NURSING

The Mercy Hospital School of Nursing was established in 1899 and incorporated under the laws of the State of Maryland in 1901. It has developed the art of the profession according to the high standard requisite to qualify for Registered Nurse.

Requirements for Admission.

A candidate desiring to enter the School of Nursing should apply to the Superintendent of Nurses by letter or in person at least six weeks before the entrance date. If is preferred that she apply in person accompanied by her mother or guardian. If a personal interview is not possible, a written application may be submitted.

Age.

Candidates should be between the ages of eighteen and thirty-five years.

Physique.

Applicants should be of average height and good physique. Teeth and eyes should be attended to before entering the School, and tonsils removed if not in good condition. Every applicant is required to send in a certificate of health by her family physician. A physical examination is also made by the school physician during the preliminary period.

Education.

Applicants for admission should present at least high school certificate of graduation or its equivalent in educational values. The credits of preliminary education are fully accounted and the nurse who is the better qualified finds such a foundation more to her advantage as she progresses through the years of study.

Calendar.

Students are admitted September 1st and February 1st.

Length of Course.

The course of instruction covers three years. It is divided into a preliminary term of four months, a freshman term of eight months, a junior term of one year, and a senior term of one year.

Conditions of Acceptance.

The Superintendent of Nurses decides as to the fitness for the work and the propriety of retaining or dismissing a student at the end of the term of probation or during its course. She may also, with the approval of the faculty, terminate the connection of a student with the School in any justifiable instance. At the end of the preliminary period, if the student's health, general education, and natural aptitude prove satisfactory to the Director of the School and the Sister Superior, she shall be appointed for enrollment as a student nurse.

Expenses.

An admission fee of fifty dollars is required from all students. This covers the cost of uniforms and books required during the preliminary course.

Should the student for any reason leave the school before completing the course, this fee will not be returned, nor may she take with her any part of the equipment.

After four months' probation, candidates, if they possess the necessary qualifications, are admitted to the School of Nursing proper. They receive ten dollars per month to help defray incidental expenses. No other compensation is given, the education received being considered sufficient return for service rendered. Board, laundry, etc., are furnished by the institution.

Four weeks before admission candidates should forward the fifty-dollar entrance fee, and measurements for uniforms and aprons, which will be in readiness upon their arrival. No orders will be considered until this fee is received.

THE FIVE-YEAR COURSE

Leading to B.S. Degree and Diploma of Graduate Nurse

The University of Maryland, in affiliation with the Mercy Hospital School of Nursing, offers a combined Academic and Nursing program.

The completion of this course entitles the student to the degree of Bachelor of Science from the University of Maryland, and to the diploma of the Mercy Hospital School of Nursing.

Graduate nurses who hold college degrees are greatly in demand, especially for positions in administration and teaching. This program consequently offers a distinct advantage.

Outline of Course.

Two years of this course (pre-nursing or post-nursing period) consisting of 70 semester hours are spent in the College of Arts and Sciences of the University, with the usual College vacations. At least the latter of these two years must be spent in residence at College Park in order that the student may have her share in the social and cultural activities of college life.

Requirements for Admission.

Students electing such a course must, before entering the School of Nursing, satisfy the entrance requirements of the University of Maryland. Applicants must be personally adapted to professional nursing.

Fees and Other Expenses.

During the two years which the students spend at College Park they maintain themselves, and pay their own College fees. (See University of Maryland bulletin.)

Throughout the Nursing School Course the hospital provides, without expense to the student, maintenance and care during temporary illness.

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